

Index to Publications for 1971¹

The Fisheries Research Board of Canada published, in 1968, Bulletin 164 containing a list of all articles, in all series, of publications and Studies that appeared up to the end of 1964, together with a subject-author index to all series. From 1965 on, a subject-author index and list of all Board publications (including Studies, Interpretive Articles, and Miscellaneous Special Publications) have been included in the last issue of each Journal volume. These follow the pattern and style used in Bulletin 164.

The present subject-author index is based on: (a) the 12 issues of Volume 28 of the Journal; (b) Bulletins 175, 176, 177, and 178 issued during 1971 (No. 176 is not subject-indexed in detail since it contains its own index); (c) Circular series and Technical Reports from the Board's establishments issued during 1971 in time to be included; (d) Miscellaneous Special Publication (which includes special bindings and pamphlets that do not belong to a particular series of FRB publications) No. 13 in French; (e) Studies No. 1457-1591 (reprints of articles published in other periodicals; annual two-part bindings ceased with the 1969, Part 2 issue); (f) general reference to the 1970 Annual Report and the 1969/1970 Review; (g) Interpretive Articles 58(F), 109(F), 128(F), and 178-233, which appeared in non-Board publications.

Lists of titles of the individual publications and articles immediately follow this index, arranged under the following types of publications. (The list of articles in this Volume 28 of the Journal is in the form of a table of contents of its 12 issues, suitable for binding with this volume.)

Abbreviations used in the index for types of publications:

(The designation "(F)" in the index indicates the article referred to was published in French.)

- J — Journal of the Fisheries Research Board of Canada
- B — Bulletin of the Fisheries Research Board of Canada
- AR — Annual Report of the Fisheries Research Board of Canada
- R — Review of the Fisheries Research Board of Canada (biennial)

Circulars of the Fisheries Research Board of Canada:

CHN — Halifax Laboratory, Halifax, N.S.

¹Subject index prepared by Neal M. Carter; November and December issues of the Journal were indexed from title pages and abstracts only.

CJG — Biological Station, St. John's, Nfld.
CNG — Biological Station, Nanaimo, B.C.

Miscellaneous:

- T — Technical Reports of the Fisheries Research Board of Canada
- MSP — Miscellaneous Special Publications

Articles by FRB Staff published in non-Board publications:

- S — Studies of the Fisheries Research Board of Canada
- A — Interpretive Articles of the Fisheries Research Board of Canada

Other abbreviations:

The Provinces and Territories of Canada are abbreviated to:

Alta. (Alberta)	Ont. (Ontario)
B.C. (British Columbia)	P.E.I.
Man. (Manitoba)	(Prince Edward Island)
N.B. (New Brunswick)	Que. (Quebec)
Nfld. (Newfoundland)	Sask. (Saskatchewan)
N.S. (Nova Scotia)	Yuk. (Yukon)
N.W.T. (Northwest Territories)	

Certain geographical areas (particularly oceans) have their major subdivisions designated by N (north), S (south), E (east), W (west), NW (north-west), etc., also Atl. (Atlantic), Pac. (Pacific).

Certain international commissions are commonly referred to as: ICNAF (International Commission for the Northwest Atlantic Fisheries); INPFC (International North Pacific Fisheries Commission).

In the index references, "re" is frequently used to imply "in relation to," "in connection with," and similar meanings; "vs." to imply such meanings as "in contrast to," "as opposed to."

Scientific names, common names, and their spellings, for Canadian and American marine fishes taken within 200-m depth and for freshwater fishes are indexed according to the nomenclature recommended in *A List of Common and Scientific Names of Fishes from the United States and Canada* (Third Edition, 1970), Special Publication No. 6 of the American Fisheries Society. Where authors have used names or spellings not conforming to those recommended, index headings for such names are included, referring to the recommended ones under which the subject entries will be found.

A

Abnormality

- J 28(8): 1198 (supernumerary copulatory organs in flatworm *Dugesia tigrina*)
 (10): 1672 (ambicoloration; fin & vertebrae, in a petrale sole)
 (12): 1918 (abnormal body curvature in Norwegian rainbow trout fry)
 S 1536 (deformed chironomids larvae in Okanagan Valley lakes, B.C., & L. Erie, possibly caused by synthetic chemical pollutants)

Abraaliopsis (Watasenia) felis (see Squids)

Abundance

- J 28(3): 417 (seasonal, re Pac. ocean perch reproductive patterns)
 (4): 573 (calculating stream-migrating kokanee fry)
 (5): 755 (whelping harbour seals, Sable Is., N. S.)
 (6): 883 (Pac. cod, re environmental effects on egg development)
 (7): 935 (seasonal, of fish communities components in Passamaquoddy Bay, N.B., & in warmer waters)
 (9): 1269, 1275, 1293 (estimating fish, by voltage-integrating fish echo sounder)
 (10): 1493 (Adams R. sockeye salmon fluctuations re year-class dominance)
 (10): 1621 (northern rockfish)
 B 177 (*Gonyaulax tamarens* dinoflagellate re rate of paralytic toxin accumulation in E Canada shellfishes)
 T 202 (various diatom species, NW Miramichi R. basin, N.B.)
 221 (Pac. ocean perch, as taken in B.C. ground-fish surveys)
 260 (groundfish species, Scotian Shelf)
 A 207 (N.B. & N.S. herring)

Acanthephyra (caridean shrimps)

- J 28(10): 1615 (*A. curtirostris* & *A. quadrispinosa* new records, off B.C. coast)

Acanthocephala (spiny-headed worms)

- T 160 (*Echinorhynchus gadi* in *Lepidion eques* morid fish)

Acanthocybium solanderi (see Wahoo)

Acara, Altan Hüseyin

- J 28(4): 573 (enumerating kokanee fry)

Acari

- J 28(6): 849 (samplings from shallow stream bed)

Acarina (parasitic)

- S 1532 (of a high Colorado mountain creek)

Acclimation; Adaptation (see Oxygen, dissolved; Pollution; Salinity, reactions to; Temperature, reactions to)

Achnanthes minutissima (see also Diatoms)

- J 28(2): 215 (most abundant diatom in 4 small NW Ont. lakes)

Achromobacter (see also Bacteria)

- S 1460 (re irradiated haddock spoilage)

Acids (see following types, also names of acids)

Acids, amino (see also Octopine; Proteins)

- J 28(4): 565 (effect on Atl. salmon olfactory epithelium electrical response)
 (8): 1191 (of Dungeness crab tissues)
 (12): 1837 (of rainbow trout white skeletal muscle)
 S 1491 (ability of some unicellular marine algae to cleave aromatic ring)
 1519 (nondestructive determination of total, in marine sediments)

Acids, fatty (see also Lipids; Oils and fats)

- J 28(4): 601 (of sand lance oils & lipids)
 (8): 1191 (composition of Dungeness crab tissues)
 T 249 (re detection & estimation of marine oil adulteration of all-vegetable margarines & cooking fats)
 S 1462 (structure: influence on pancreatic lipase activity)
 1474 (exceptional occurrence of C₁₅, C₁₇, & C₁₉, also composition of triglycerides, cephalins & lecithins, in rainbow smelts)
 1475 (confusion between C₁₈ & C₂₀, in gas chromatographic analysis of water-plant seed lipids)
 1481 (minor, of *Euphoria longana* seed oil)
 1514 (of Amazon R. dolphin jaw & blubber wax esters, triglycerides & diacyl glyceryl ethers)
 1528 (isoprenoid as breakdown product of chlorophyll in ancient lake deposit shale)
 1564 (*trans*-6-hexadecenoic acid & corresponding alcohol in sea anemone *Metridium dianthus* lipids; also fatty acid composition of lipids)
 1572 (saturated & isoprenoid in periwinkle, Atl. oyster & quahaug lipids)

Acids, nucleic (see also Enzymes; Nucleosides)

- S 1560 (deoxyribonucleic acid polymerase from sockeye salmon testes)

Acinetobacter (see also Bacteria)

- J 28(10): 1511 (associated with surfaces of hatching Pac. salmon eggs)

Acipenser fulvescens (see Sturgeon, lake)

medirostris (see Sturgeon, green)

oxyrhynchus (see Sturgeon, Atlantic)

Ackman, Robert George

- J 28(4): 601 (investigation re commercial oil from sand lance)
 T 233 (possible toxic materials in Nfld. bottom deposits)

- 249 (methodology for identification of marine oils in edible oil products)
- 254 (phosphorus levels in Nfld. water samples)
- S 1474 (occurrence of odd-chain fatty acids in smelt)
- 1475 (confusion between C₁₈ & C₂₀ fatty acids in analysis of seed lipids)
- 1481 (fatty acids from *Euphoria longana*)
- 1514 (lipids of Amazon R. dolphins)
- 1528 (geological fate of chlorophyll)
- 1564 (*trans*-6-hexadecenoic acid and alcohol in sea anemone lipids)
- 1572 (distribution of fatty acids in lipids of 3 species of molluscs)
- 1591 (pristane and other hydrocarbons in fish oils)
- Actiniaria (see Sea anemones)
- Actiniscus canadensis*; *A. pentasterias* (see Dinoflagellates)
- Activity; Exercise (see also Stress)
- J 28(4): 587 (factors influencing scope for activity & active & standard metabolism in rainbow trout)
- (6): 801, 809, 815 (re fish growth efficiency from rations)
- (7): 1062 (sensor apparatus for detecting lobster, in a burrow)
- S 1590 : 548 (of fishes re temperature)
- A 212 (energy cost of living, for fish: review)
- Activity coefficient
- S 1512 (isopiestic measurements on H₂O-NaCl-MgCl₂ system at 25 C)
- 1515 (as above, for H₂O-NaCl-Na₂SO₄ system)
- Adams River, B.C.
- J 28(10): 1493 (sockeye salmon abundance since 1938 re year-classes dominance)
- Adaptation (see Physiology; Salinity, reactions to; Temperature, reactions to)
- Addison, Richard Frederick
- T 233 (possible toxic materials in Nfld. bottom deposits)
- 254 (phosphorus levels in Nfld. water samples)
- S 1474 (occurrence of odd-chain fatty acids in smelt)
- Adductor muscle (see Muscle; also Clam; Oyster; etc.)
- Adenosine and derivatives (see also Purines)
- J 28(8): 1125 (phosphate changes in Atl. fish post-mortem skeletal muscle)
- Adrenal-cortical cells
- J 28(4): 505 (histology of, in wild vs. hatchery land-locked Atl. salmon)
- Aeromonas* (see also Bacteria; Disease)
- J 28(3): 335 (surviving ingestion by tubificids)
- (10): 1629 (aberrant *A. salmonicida* strain in sablefish as first marine spontaneous furunculosis occurrence; also in cultured sockeye & chum salmon)
- (10): 1511 (strains associated with surfaces of hatching Pac. salmon eggs)
- Age; Age composition (see also Growth; Length; Size; Weight)
- J 28(4): 513 (age alternation of successive sockeye salmon spawning generations)
- (5): 771 (rainbow trout, Batchawana Bay, L. Superior)
- (6): 821 (Skeena R. sockeye & pink salmon, re gillnet selectivity)
- (7): 1009 (re S Gulf of St. Lawrence seasonal herring stocks discreteness)
- (8): 1153 (winter flounder, Long Pond, Nfld.)
- (9): 1335 (& growth of weathervane scallop, Washington coast)
- (10): 1573 (re animal production-biomass ratio)
- (10): 1493 (Adams R. sockeye salmon year cycle dominances re abundance fluctuations)
- (10): 1621 (re length, northern rockfish)
- (11): 1739 (young rainbow trout & chinook salmon re columnar disease susceptibility)
- CNG 91 (steelhead trout, in Vancouver Is. stream-anglers' catches)
- T 213 (distribution, B.C. offshore herring)
- 224 (ringed seal population data analysis)
- 259 (re length, B.C. rock sole)
- S 1494 (behaviour of growth & mortality estimates based on age-length keys)
- A 184 (Canadian arctic harp seal)
- 190 (Greenland turbot)
- 193 (Atl. capelin)
- 207 (composition, N.B. & N.S. herring)
- Age determination (see also Bone; Marking; Otoliths; Scales, fish; Shells; Tagging; Teeth)
- J 28(10): 1583 (possibilities of radioisotope X-ray fluorescence spectrometry: review)
- (10): 1666 (re population biostatistical analysis)
- Aggregation (see also Schooling)
- J 28(7): 999 (spacing & density as criteria for distinguishing from schooling of fish)
- Aggression (see also Behaviour; Mating; Spawning; Sympatry)
- J 28(7): 1019 (behaviour of introduced rainbow trout)
- T 235 (lobster agonistic behaviour)
- S 1465 (in crayfish copulatory behaviour)
- A 212 (energy cost, in fish: review)
- Agonism (see Aggression)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Agonus acipenserinus* (see Poacher, sturgeon)
decanus (see Poacher, Atlantic)
- Aiken, David Edwir
 S 1557 (ovarian maturation and egg laying in crayfish)
- Alaska
 J 28(1): 98 (female maturity determination in shrimps)
 (1): 115 (meristic differences between anadromous & freshwater-resident arctic char)
- Albacore (*Thunnus alalunga*)
 A 182 (ICNAF Canadian 1969 research summary)
- Alberta (see Banff National Park; Jasper National Park; Waterton Lakes National Park)
- Alcohols (see also Esters; Ethers; Glycol)
 CHN 39 (extraction & determination of isopropano residues in fish protein concentrates)
 S 1564 (trans-6-hexadecenol in sea anemone wax)
- Alcyonaria (see Corals)
- Alderice, Donald Francis
 J 28(5): 727 (salinity & temperature effects on petrale sole)
 (6): 883 (environment re Pac. cod eggs)
 (10): 1545 (salinity and temperature re Pac. her-ring)
- Aldrich, Frederick Allen
 S 1520 (food of giant squid)
- Aldrin (see Insecticides)
- Alevins (see name of adult fish; e.g. Salmon; Trout)
- Alewife (*Alosa pseudoharengus*)
 J 28(7): 935 (summer periodic component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
 (7): 1057 (effect of warm water of nuclear power plant discharge canal)
 (8): 1215 (changes in blood lactic acid concentrations during passage through a pool & weir fishway)
 (9): 1285 (methylmercury in, N.S. Banks)
 T 261 (bibliography for Gulf of St. Lawrence)
 S 1591 (pristane & other hydrocarbons in commercial Canadian oil)
- Algae (see also Benthos; Diatoms; Phytoplankton; Plankton; Seaweeds; also classifications of)
 J 28(2): 192, 215 (of several small NW Ont. lakes re primary production)
 (11): 1783 (^{65}Zn vs. Zn distribution in experimental marine ecosystem)
 S 1480 (vitamins composition of unicellular *Porphyridium cruentum*)
- 1491 (catabolic fission of phenylalanine aromatic ring by various classifications of unicellular marine)
- Ali, Mohammed Youssouf
 J 28(9): 1235 (medaka vertebral count re egg size)
- Alkalinity (see also Carbonate; Hardness of natural waters; pH)
 J 28(11): 1811 (classification index for degree of, in lakes)
- Alleles (see Genes)
- Allen, Kenneth Radway
 J 28(10): 1573 (production and biomass)
- Allen, William Vail
 J 28(8): 1191 (tissue components in crab)
- Alligatorfish (*Aspidophoroides monopterygius*)
 J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
 T 225 (associated with Bay of Fundy scallop beds)
 261 (bibliography for Gulf of St. Lawrence)
- Allopatry
 J 28(9): 1259 (vs. sympatry re feed & habits of Dolly Varden & cutthroat trouts in 3 B.C. lakes)
- Allosmerus elongatus* (see Smelt, whitebait)
- Alopias vulpinus* (see Shark, thresher)
- Alosa aestivalis* (see Herring, blueback)
pseudoharengus (see Alewife)
sapidissima (see Shad, American)
- Aluminium derivatives
 J 28(2): 277 (in sediments of 16 small NW Ont. lakes)
- Ambloplites rupestris* (see Bass, rock)
- Ambystoma gracile* (see Salamanders)
- Amines (see also Ammonia; Dimethylamine; Trimethylamine)
 J 28(1): 1 (production and differentiation in stored frozen muscle of various Atl. coast fishes)
 (8): 1173 (hexosamine levels in salmon, trout, & bovine blood sera)
 (8): 1191 (glucosamine content of Dungeness crab exoskeleton)
 S 1497, 1498 (metabolism of putrescine by fish mycobacteria)
- Amino acids (see Acids, amino; also Proteins)
- Ammocoetes (see Lamprey)

- Ammodytes americanus* (see Sand lance, American)
dubius (see Sand lance, northern)
hexapterus (see Sand lance, Pacific)
- Ammonia; Ammonium ion
 J 28(5): 759 (rapid method for determination in water with univalent cation glass electrode)
 (5): 788 (analysis technique for ammonium-nitrogen in artificial seawater aquaria)
 T 255 (ammonium chloride toxicity tests on brook trout)
 S 1519 (non-destructive determination in marine sediments)
- Amphibians (see Frog, leopard; Newt; Salamanders)
- Amphipoda
 J 28(2): 257 (*Pontoporeia affinis* dominant in many small NW Ont. lakes zoobenthos)
 (5): 705 (biological magnification & degradation of insecticides by fresh water)
 (5): 711 (*Hyallela azteca* & *Crangonyx richmondensis occidentalis* energy flow & secondary production, Marion L., B.C.)
 (5): 776 (*P. affinis* lipid & caloric content, Cayuga L., N.Y.)
 (6): 928 (in feed of tidepool & fluffly sculpins)
 (9): 1331 (zoogeographic problem of presence of relict *P. affinis*, L. Washington, USA)
 T 165(F) (*Gammarus lacustris* re rainbow trout farming)
 258 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
 266 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1558, 1570 (toxicity & uptake of polychlorinated biphenyl pesticides from sea water re *G. oceanicus*)
- Amlyoplectin
 S 1585 (accumulation in *Clostridium botulinum*)
- Anabiosis (see Revival)
- Analysis, canonical (see Computer programming; Mathematical treatment of data)
- Analysis, chemical (see Analysis methods (chemical); Bioassay; Composition, chemical; Limnology; Nutrients, aquatic; Oceanography; etc.)
- Analysis, mathematical (see Computer programming; Mathematical treatment of data; Models, mathematical)
- Analysis methods (chemical) (see also Composition, chemical)
- J 28(5): 759 (rapid method for determining ammonium ion in water with univalent cation glass electrode)
 (5): 769 (liquid scintillation method for ¹⁴C-labelled benthic microflora)
 (5): 788 (ammonium-nitrogen in artificial seawater aquaria)
 (7): 1043 (nitrilotriacetic acid in inland waters)
 (7): 1055 (fluoride in soil or mud by nonfusion distillation pF method)
 (9): 1225 (methylmercury)
 (10): 1583 (by radioisotope X-ray fluorescence spectrometry: review)
 B 177 (paralytic shellfish toxin)
 CHN 39 (isopropanol residues in fish protein concentrates)
 T 217 (determining origin of petroleum oil spills causing aquatic pollution)
 249 (detection & estimation of marine oil adulteration of all-vegetable margarines & cooking fats)
 272 (polychlorinated biphenyls & other industrial halogenated hydrocarbons)
 S 1463 (mass spectrometric identification of insecticides)
 1467 (automated measurement of seawater dissolved nutrients)
 1471 (colorimetric assay for pancreatic lipase, based on acetaldehyde liberation from vinyl oleate substrate)
 1472 (phenosafranin as improved indicator for seawater chlorinity titrations)
 1505 (fluoride in sea water by potentiometry)
 1519 (nondestructive, for marine sediments protein, total amino acids, & ammonia)
 1534 (flameless atomic absorption spectrophotometry procedure for mercury detection)
 1569 (spectrofluorometric for fuel oil residual contamination in aquatic animals)
 A 210 (sea water: book review)
- Analysis, proximate (see Composition, chemical)
- Anarhichas lupus* (see Wolffish, Atlantic)
 minor (see Wolffish, spotted)
- Anarrhichthys ocellatus* (see Wolf-eel)
- Anas rubripes* (see Duck, black)
- Anastassiadis, Phoebus Anastassios
 J 28(8): 1173 (Pac. salmon glycoprotein constituents)
- Anatomy (see also Histology; Morphology; also names of anatomical structures)
- J 28(10): 1672 (abnormal, of a petrale sole)
 (10): 1595 (of chondrophore vs. sessile hydroid)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- (11): 1789 (shellfish, re association of melanin pigment with presence of paralytic toxin)
 B 177 (re paralytic toxin in E Canada shellfishes)
- Anchovy, northern (*Engraulis mordax*)
 T 257 (taken in 1970 B.C. trawl fishery)
- Anderson, George Cameron
 S 1466 (primary production studies in N Pac. Ocean)
- Anderson, John Murray
 J 28(9): 1285 (methylmercury in fish)
 S 1556 (effects of temperature on brain oxygen in salmonid fishes)
 A 222 (pollutants effect on physiology and behaviour)
- Anderson, Robert Stewart
 J 28(3): 311 (alpine and subalpine zooplankton)
- Androgens (see Hormones)
- Andrusak, Harvey
 J 28(9): 1259 (cutthroat and Dolly Varden segregation)
- Anesthetization
 J 28(1): 113 (sampling fish muscle for residual M.S. 222 & quinaldine)
 (5): 625, 635 (physiological effects of tricaine methanesulphonate on brook trout)
- Anglemouth, veiled (*Cyclothone microdon*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Angler (see Goosefish)
- Angler, deepsea (*Ceratius holboellii*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Angler, lesser deepsea (*Cryptopsaras couesi*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Angling
 J 28(3): 351 (relative utilization rates of Miramichi R., N.B., Atl. salmon by local angling vs. Maritime commercial fisheries)
 CNG 91 (steelhead trout age & size in Vancouver Is. stream catches)
 T 270 (Canadian Atl. salmon catches by provinces, 1952-70)
- Anguilla rostrata* (see Eel, American)
- Animal feed (see Feed; Feedstuff; Fishmeal; Rations)
- Anisakis* (see Indicator species; Nematoda)
- Annelids (see also Leeches; Oligochaeta; Polychaeta; etc.)
 J 28(6): 928 (feed of fluffy & tidepool sculpins)
- Anomura* (see Crabs, hermit)
- Anoplopoma fimbria* (see Sablefish)
- Anostraca (see also Crustacea)
 J 28(3): 311 (of several W Canadian alpine & subalpine ponds)
- Anoxia (see Oxygen, dissolved; Respiration)
- Anthozoa (see Sea anemones)
- Antia, Naval Jamshedji
 S 1480 (composition of a unicellular red alga)
 1491 (fission of phenylalanine by marine algae)
- Antibiotics
 J 28(4): 521 (sensitivity of pathogenic vibrios bacteria to various)
 A 203 (recommended as fish products preservative)
- Antibodies (see also Disease; Viruses)
 J 28(9): 1253 (production & immune responses of coho salmon & rainbow trout re *Columnaris* disease)
- Antigens (see Antibiotics)
- Antimony derivatives
 J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
- Antimora rostrata* (Pacific) (see Cod, longfin)
- Antipollution measures (see also Pollution)
 J 28(12): 1912 (combating fuel oil marine spills)
 T 217 (tracing origin of fuel oil spills)
 250 (computer programming)
 254 (elemental phosphorus release, Nfld.)
 S 1476 (re implementing of Canadian ocean studies)
 1500, 1504 (re pulp mill effluents)
 1531 (flocculating reaction, re pollutants removal)
 1539 (capacity of marine estuaries to flush away pollutants)
 A 183 (re oceanography & ocean resources management)
 187 (sewage removal in confined waters)
 201, 230 (re environment effects on human food production)
 203 (by protein recovery from fish processing wastes)
 216 (re detergents)
 223 (combating fuel oil, elemental phosphorus, sewage & pulp mill pollution, Canadian Atl. coast)
- Apeltes quadracus* (see Stickleback, fourspine)
- Aplodinotus grunniens* (see Drum, freshwater)
- Apparatus, Equipment (see also names of types of fishing gear)
 J 28(1): 73 (measuring insect larval respiration rates)

- (1): 100 (rapid removal of embryos from fish eggs)
 (2): 189 (incubation bottles holder for in situ phytoplankton production determinations)
 (2): 215 (lake periphyton sampler)
 (3): 305 (re detection of bacterial production of trimethylamine)
 (3): 335 (oligochaete worm feces collector)
 (3): 365 (corer for sampling shallow-water benthos)
 (3): 379 (measuring dissolved oxygen requirements of embryonic & larval quahaug)
 (4): 491 (blood perfusion for fish hypoxia studies)
 (4): 559 (modified bomb calorimeter for small plankton samples)
 (5): 643 (smokehouse)
 (5): 655 (toxicity tests of copper sulphate towards brook trout eggs & fry)
 (5): 781 (vascular catheterization procedure improvement for teleost fishes)
 (6): 849 (sampling benthos & substrate materials in shallow streams)
 (7): 1043 (glass ampoule for nitrilotriacetic acid assay)
 (7): 1049 (mud interstitial water sampling receptacle)
 (7): 1061 (practical small-scale commercial dryer for fish fillets & steaks)
 (7): 1062 (sensor for detecting presence of lobster in a burrow)
 (8): 1196 (digital recorder monitoring of dissolved oxygen in fish tanks)
 (8): 1203 (modified biopsy needle for sampling muscle from living fish)
 (8): 1205 (simple durable epifaunal collectors)
 (9): 1269, 1275, 1293 (echo voltage integrator re fish density in echo sounding)
 (9): 1352 (studying predation of torrent sculpin on salmon fry re moonlight effect)
 (9): 1319 (testing yearling sockeye salmon reaction to polarized light)
 (9): 1322 (aquatic phytomacrofauna quantitative sampler)
 (10): 1583 (radioisotope X-ray fluorescence spectrometry)
 (10): 1511 (incubating Pac. salmon eggs for examining bacterial flora of their surfaces)
 (11): 1815 (dispenser for simultaneous delivery of Winkler reagents for dissolved oxygen)
 (11): 1805 (photographic, for estimating distances between fish schooling in aquaria)
 B 178 (re raft-culturing of Pac. oyster in B.C.)
 T 215 (photo-electric fish counter)
 232 (sampling razor clam beds)
 236 (culturing mud dab eggs & larvae)
 249 (aspirating thin-layer chromatography material)
- 252 (modified Icelandic high-speed plankton sampler)
 255 (testing yellow phosphorus production wastes toxicity toward fish)
 264 (fluid mechanics of netting & low-solidity screens)
 S 1461 (thermistor readout monitor for cold storage temperatures)
 1473 (portable refrigerated unit for holding iced freshwater fish)
 1502 (automatic wet-feed dispenser for fish culture)
 1518 (prawn traps)
 1522 (pressure-jump bomb with optical detection)
 1534 (syringe procedure re flameless atomic absorption spectrophotometric detection of mercury)
 1554 (recording pressure changes & oxygen consumption in fish respiratory cavities)
 1565 (removal of nematodes cephalic sections)
 A 128(F) (experimental prawn trap, B.C.)
 178 (details of assay procedure for fish by flameless atomic absorption spectrophotometry)
 225 (resume of S 1473 above)
- Appetite (see Feed)**
- Applegate, Vernon Calvert
 S 1484 (molecular structure & biological activity among mononitrophenols containing halogens)
- Apristurus brunneus (see Shark, brown cat)**
- Aquaria (see also Tanks)**
 J 28(5): 788 (analysis method for ammonium-nitrogen in artificial sea water)
 (11): 1805 (photographic estimation of distances between schooling fish in)
- Aquiculture (see Culture; Feed; Hatcheries; Ponds; Rations)**
- Arai, Hisao Philip
 J 28(5): 767 (new species of helminth parasites from California embiotocid fishes)
 (10): 1645 (N and Central American species of *Rhabdochona*)
- Arai, Mary Needler
 J 28(10): 1677 (*Pachycerianthus* from B.C. and Washington)
 (10): 1365 (publications by Edith and/or Cyril Berkeley)
- Araphidineae**
 J 28(2): 265 (dominant diatoms in many small NW Ont. lakes)

- Architeuthis dux* (see Squid, giant)
- Archoplites interruptus* (see Perch, Sacramento)
- Arctic (see also Oceanography, arctic; also names of islands, organisms, etc.)
- B 176 (synopsis of Canadian marine zooplankton; see its index)
- T 231 (potential arctic char production in Keyhole L., Victoria Is., Canada)
- MSP 13(F) (French translation of MSP 13—FRB studies in Canada's Arctic)
- S 1488 (new genus & species of dinoflagellates as marine relicts in Canadian arctic lakes)
- A 220 (re C.S.S. *Hudson* circumnavigation of N & S America)
- 231 (FRB studies in Canada's Arctic)
- Arctica islandica* (see Quahaug, ocean)
- Argentina silus* (see Argentine, Atlantic)
- Argentine, Atlantic (*Argentina silus*)
- J 28(9): 1285 (methylmercury in, N.S. Banks)
- T 260 (standing crop, availability, weights, lengths) etc., from Scotian Shelf surveys, 1958-68, (morphometric variation in trematode parasite)
- S 1483
- A 182 (ICNAF Canadian 1969 research summary)
- Armour, Carl Lee
- J 28(5): 788 (analysis of ammonium-nitrogen in artificial seawater aquaria)
- Armstrong, Francis Adolf John
- J 28(2): 171 (chemical characterization of FRB Experimental Lakes waters, NW Ont.)
- (2): 215 (periphyton of FRB Experimental Lakes, NW Ont.)
- (11): 1763 (eutrophication of 1 of FRB Experimental Lakes, NW Ont.)
- A 178 (determination of residual mercury in fish tissue)
- Armstrong, Milton Connor
- T 215 (photo-electric fish counter)
- Arsenic derivatives
- J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
- Artediellus uncinatus* (see Sculpin, arctic hooker)
- Arthropoda (see classifications of; also names of species)
- Arthur, John Wentworth
- J 28(12): 1841 (chloramine toxicity to amphipod and minnow)
- Ash (see also Composition, chemical)
- J 28(1): 73 (content of some thermal spring aquatic insects)
- Aspidophoroides monopterygius* (see Alligatorfish)
- Assay methods (see Analysis methods (chemical); Bioassay)
- Assimilation ratios (see also Metabolism)
- J 28(5): 790 (effect on phytoplankton, by enrichment of N. Pac. sea waters)
- Associations (biological) (see also Communities)
- J 28(11): 1683 (benthic macroinvertebrates in L. Ontario bays)
- T 225 (invertebrates on Bay of Fundy scallop beds)
- S 1580 (classification & ordination of many shallow-water benthic samples, P.E.I.)
- Asterias forbesi* (see Starfish, common)
- vulgaris* (see Starfish, common)
- Asteroidea (see Starfishes)
- Atheresthes stomias* (see Flounder, arrowtooth)
- Atlantic Ocean (see also Fisheries; Oceanography; names of organisms, etc.)
- T 199 (invertebrate (6) & fish (122) species taken during otter-trawl survey from off Delaware Bay to off Fort Pierce, Florida, 1969)
- Aulichthys japonicus* (see Tube-snouts)
- Aulorhynchidae (see Tube-snouts)
- Aulorhynchus flavidus* (see Tube-snout)
- Aulstad, Dag
- J 28(12): 1918 (abnormalities in trout)
- Availability (see also Catches; Fisheries)
- T 260 (groundfish species, Scotian Shelf, from 1958-68 surveys)
- Avoidance reaction
- J 28(8): 1167 (American shad re nets)
- A 222 (zinc & copper vs. DDT, at sub-lethal levels, by salmonids)

B

Babine Lake and River, B.C.

- J 28(3): 369 (identification of sockeye salmon populations by X-ray spectrometry & multi-variant analysis)

Bacillariophyceae (see Diatoms; Phytoplankton)

Bacteria (see also Bacteriophyta)

- J 28(1): 104 (morphology of *Pseudomonas*-like proteolytic pseudomonad causing rainbow trout skin lesions)

- (3): 305 (*Pseudomonas putrefaciens* & other bacteria producing trimethylamine from trimethylamine oxide in chilled haddock fillets)
- (3): 335 (*Flavobacterium*, *Pseudomonas*, *Aeromonas* & *Micrococcus* in Toronto Harbour sediment surviving ingestion by 3 tubificid oligochaete species)
- (4): 517 (morphology & taxonomy of *Vibrio anguillarum* re first records of vibriosis in Pac. salmon cultured in Canada; correction on J 28(8): 1219)
- (4): 533 (Columbia R. fish ladders influence on *Chondrococcus columnaris* disease of fishes)
- (5): 643 (gamma irradiation effects on *Salmonella* spp.)
- (5): 783 (beneficial effect of washing off slime as bacterial medium on freshwater fish keeping quality)
- (8): 1185 (counts in commercial fish diets)
- (10): 1629 (aberrant *Aeromonas* strain)
- (10): 1511 (characterization, identification & ecology of *Pseudomonas* & other bacterial flora associated with surface of hatching Pac. salmon eggs, re egg mortality)
- CHN 40 (red crab resistance to *Gaffkya homari* lobster disease)
- 41, 42 (nature & control of gaffkemia in lobsters)
- T 218 (antibacterial effects of sea water, particularly re *E. coli*)
- S 1460 (re irradiated haddock spoilage by *Pseudomonas* & *Achromobacter*)
- 1485 (role of marine, as zooplankton feed)
- 1497, 1498 (metabolism of putrescine by mycobacteria isolated from fish)
- 1500 (*Desulfovibrio desulfuricans* production of hydrogen sulphide in marine sediments from pulp mills)
- 1503 (role in formation of small suspended seawater particles)
- 1559 (ingestion by *Uronema* marine ciliate)
- A 180 (*Gaffkya homari* & pathological effects on lobster)
- A 203 (*Clostridium botulinum* & *C. perfringens* re fish spoilage)
- Bacteriophyta
- J 28(2): 192 (of several small NW Ont. lakes)
- Baffin Island, N.W.T. (see Cumberland Sound; Frobisher Bay)
- Balaena mysticetus* (see Whale, bowhead)
- Balaenoptera acutorostrata* (see Whale, minke)
- physalus* (see Whale, fin)
- Balanus* (see Barnacles)
- Balloonfish (*Diodon halocanthus*)
- J 28(11): 1809 (new record of lymphocystis viral infection in, E Pac.)
- Banerjee, Tapan
- J 28(7): 1051 (California seaperch maturity and fecundity)
- Banff National Park, Alta.
- J 28(3): 311 (crustacean plankton of 49 alpine & subalpine lakes and ponds)
- Banse, Karl
- J 28(10): 1469 (new species and revised descriptions of Polychaeta)
- Baptist, John Paul
- J 28(11): 1783 (distribution of radioactive zinc in marine ecosystem)
- Barica, Jan
- J 28(5): 759 (rapid determination of ammonium in water)
- Barlow, John
- J 28(1): 15 (isozyme polymorphisms in American lobster)
- Barnacles
- T 225 (associated with Bay of Fundy scallop beds)
- 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Barner, Leonard Walter
- T 213 (B.C. offshore herring survey, 1969-70)
- Barracough, William Edward
- J 28(9): 1345 (anomalous occurrence of carp in marine environment)
- (10): 1681 (whitebait smelt recorded in B.C. waters)
- (12): 1922 (new sculpin in B.C. coastal waters)
- Barracudina, white (*Paralepis rissoi krøyeri*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Bass, largemouth (*Micropterus salmoides*)
- J 28(1): 113 (sampling flesh for anesthetic residues)
- (7): 957 (vulnerability to northern pike predation)
- Bass, rock (*Ambloplites rupestris*)
- J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- A 201 (mercury contamination, Great Lakes)
- Bass, smallmouth (*Micropterus dolomieu*)
- J 28(7): 957 (vulnerability to northern pike predation)
- (9): 1285 (methylmercury in N.B.)

- A 201 (mercury contamination, Great Lakes)
- Bass, striped (*Morone (Roccus) saxatilis*)
J 28(12): 1823 (handling & salinity effects on oxygen requirements)
T 261 (bibliography for Gulf of St. Lawrence)
- Bass, white (*Morone (Roccus) chrysops*)
T 261 (bibliography for Gulf of St. Lawrence)
A 201 (mercury contamination, Great Lakes)
- Batchawana Bay, Lake Superior (see Trout, rainbow)
- Bathymetry
J 28(2): 139 (of many small NW Ont. lakes)
- Bathymograph (see also Oceanography; Temperature)
J 28(1): 102 (plotting transect data on computer printer)
- Beak
J 28(4): 620 (shape as identification of *Abraliopsis felix* squid re N Pac. coast range extension)
- Beamish, Frederick William Henry
A 197 (metabolism and biological production in fish)
- Beamish, Richard James
J 28(11): 1745 (biochemical and cytological study of suckers)
- "Beard" (of mussels) (see Byssus)
- Beck, Brian
S 1573 (harbour seal in Thlewiaza R., N.W.T.)
- Bedford Basin, N.S.
T 247 (phytoplankton production & nutrients, 1969-70)
S 1482 (eutrophication study)
1586 (phytoplankton production, export & grazing, during a 25-hour period)
- Behaviour (see also Activity; Diel habits; Environment; Feed; Light, reactions to; Mating; Migration; Odour; Reproduction; Salinity, reactions to; Schooling; Spawning; Swimming; Temperature, reactions to; etc.)
J 28(7): 1019 (role of social, in dispersal of introduced rainbow trout)
(8): 1167 (net avoidance, of American shad)
(9): 1309 (white whale, Cumberland Sound, Baffin Is., N.W.T.)
(10): 1595 ("concert" of *Vellela*, re chondrophore evolution)
(12): 1847 (effect of experience in predation by rainbow trout)
T 235 (agonistic, of lobsters)
S 1465, 1468, 1486 (copulatory; egg-laying; maternal-offspring; of the crayfish *Pacifastacus trowbridgii*)
- 1535 (sexual, of hypophysectomized & gonadectomized female guppies after treatment with chinook salmon gonadotropin)
1551 (feeding & locomotion of postlarval *Macoma balthica* clam)
1555 (during attempted mating between male green shore crabs)
A 222 (assessment of pollutants effects on fish)
- Behnke, Robert John
J 28(7): 987 (Kern R. trouts)
- Bell, Gordon Russel
J 28(10): 1511 (identification of bacterial flora in salmon streams)
T 245 (B.C. wild fish mortalities)
- Bell, William Harold
T 215 (photo-electric fish counter)
- Bellingham Bay, Washington, USA
J 28(9): 1241 (incidence of skin tumours on flounder species)
- Belonje, Bartholomeus
J 28(6): 843 (zinc retention in young rats fed increasing levels of high-zinc oysters)
- Beluga (see Whale, white)
- Belwood Lake (see Grand River, Ont.)
- Benoit, Duane Awwe
J 28(5): 655 (trout re toxicity of copper)
- Benthos
J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
(2): 257 (zoobenthos of 15 small NW Ont. lakes)
(3): 365 (sampling by simple corer vs. Ekman grab)
(5): 769 (assay method for ¹⁴C-labelled benthic microflora)
(6): 849 (sampling minute, in shallow streams)
(11): 1683 (macroinvertebrates associations & species diversity in L. Ontario bays)
(11): 1699 (macroinvertebrates production in L. Ontario bays)
(11): 1715 (macroinvertebrate community metabolism in L. Ontario bays)
T 225 (distribution, Bay of Fundy)
S 1543 (Oligochaeta, Sphaeriidae & Chironomidae of Georgian Bay, L. Ontario, & L. Erie)
1580 (classification & ordination of many shallow marine species, P.E.I.)
- Benthosema glaciale* (see Lanternfish glacier)
- Berkeley, Edith and Cyril (for new Polychaeta genus and several new Polychaeta species recently named after them, see Genera; Species new)

- J 28(10): 1360 (an appreciation of: entire issue is dedicated to them)
(10): 1365 (list of their publications)
- Bernard, Frank Rheinhold
T 218 (evaluation of shellfish growing areas)
268 (survey report on B.C. Brachiopoda)
S 1469 (occurrence of spirochaete *Cristispira* in marine bivalves)
1470 (checklist of marine molluscs of B.C.)
- Besch, Karl Wulf
T 202(F) (diatoms as indicators of mine pollution)
S 1553 (effects of mining pollution on Miramichi R. plants)
- Bibliographies (see also Review papers)
J 28(10): 1365 (of publications by Edith & Cyril Berkeley)
(10): 1407 (abyssmal polychaetous annelids)
T 151 (coregonid fishes)
176 (lake trout, 1929-1969)
209 (storage & retrieval of indexed & annotated bibliographical references)
232 (arctic char)
241 (pandalid shrimps, with emphasis on economically important *Pandalus* species)
T 246 (N America Pac. coast trawl fishery & groundfish)
261 (for 145 Gulf of St. Lawrence fishes)
272 (halogenated hydrocarbons industrial uses, re detection & effects on environment)
S 1590 (environmental temperature effects on fishes: review)
- Bicarbonate (see Carbonate; Hardness of natural waters)
- Bideford River, P.E.I.
S 1580 (classification & ordination of shallow-water estuarial benthos)
- Bigeye, (see Pollock, Pacific)
- Biggs, Robert Bruce
J 28(6): 911 (C:N relations in Chesapeake Bay)
- Bilinski, Edward
J 28(7): 1015 (trout lysosomal lipase)
- Bilton, Herbert Thomas
J 28(4): 513 (alternation of age of return in sockeye successive generations)
(6): 861 (effects of feeding level on scales of young salmon)
(11): 1757 (effect of starvation on scales of salmon)
(11): 1757 (response of young salmon to starvation periods)
- T 223 (data and computations used in racial analyses of sockeye salmon)
234 (data and computations in racial analyses of N American pink salmon)
- Bioassay
B 177 (for paralytic shellfish toxicity, using mice)
- Bioenergetics (see also Activity; Metabolism; Stress)
J 28(1): 73 (& natural history of a thermal spring dipteran herbivore)
(5): 711 (energy flow re secondary production of 2 amphipod species, Marion L., B.C.)
(6): 801, 809, 815 (fish growth efficiency re rations & activity)
(8): 1113 (re brook trout rations calorie-to-protein ratio)
S 1538 (energy flow & species diversity in marine plankton bloom)
1579 (of annual phytoplankton production, St. Margaret's Bay, N.S.)
1590: 534 (of fishes re environmental temperature & acclimation: review)
A 197 (biological production in freshwater fishes re their metabolism: review)
211 (re feed availability to different trophic levels in marine feed chain)
212 (energy cost of living, for fish: review)
233 (sun as primary energy source of ecosystems)
- Biography
J 28(10): 1360 (Edith & Cyril Berkeley)
- Bioluminescence
J 28(10): 1487 (in pelagic polychaetes)
- Biomass (see also Benthos; Matter, particulate; Phytoplankton; Plankton; Productivity; Zooplankton)
J 28(2): 189, 245, 257 (of several small NW Ont. lakes)
(2): 295 (re differences & similarities among small NW Ont. lakes)
(9): 1269, 1275, 1293 (estimating fish abundance by voltage-integrating echo sounding)
(10): 1573 (mathematical models of animal production-biomass ratio)
T 252 (ecology of macrozooplankton, Scotian Shelf)
260 (groundfish, Scotian Shelf)
S 1482 (zooplankton, Bedford Basin & St. Margaret's Bay, N.S.)
1586 (zooplankton, re phytoplanktonic chlorophyll budget)
A 188 (Saanich Inlet, B.C., primary & secondary)
211 (re feed availability to different trophic levels in marine feed chain)

Biosynthesis (see also Enzymes; Photosynthesis; Productivity, primary)

J 28(5): 769 (assay method for ¹⁴C-labelled benthic microflora)

Biota (see Fauna; Flora; also forms and types of)

Birds (see also names of species)

J 28(12): 1877 (DDT accumulation & persistence in) (susceptibility to paralytic shellfish poisoning, E Canada)

T 210 (observed during trawl survey off SW coast of Vancouver Is.)

272 (halogenated hydrocarbons detected in eggs of aquatic)

Bivalves (see Pelecypoda)

Blackbourn, David John

J 28(3): 391 (red-water ciliate *Mesodinium rubrum*)

Blackbourn, Janice

J 28(3): 391 (red-water ciliate *Mesodinium rubrum*)

Blackcod (see Sablefish)

Blackflies

J 28(1): 105 (*Simulium articum* control in Saskatchewan R. leaves DDT residues in fish flesh)

S 1533 (of a high Colorado mountain creek)

Blease, John Alden

J 28(12): 1877 (DDT in lotic ecosystem)

Blenny, snake (see Snakeblenny)

Blenny, Yarrell's (see Warbonnet, Atlantic)

Bligh, Emerson Graham

J 28(5): 786 (heavy metal contamination of fresh-water fish)

A 200 (mercury contamination in fish)

201 (contamination of Great Lakes fish)

Blood; Blood constituents (see also Enzymes; Heart; Hemoglobin; Proteins; Respiration; Serum)

J 28(1): 47 (hemosiderin re erythropoiesis in blue gourami spleen, kidney & liver tissues)

(1): 112 (leukemic condition in a cutthroat trout with sarcomas)

(4): 491 (cardiac responses to hypoxia in sea raven)

(4): 606 (chemical values for juvenile coho salmon)

(4): 610 (dieltrin insecticide residues in green sunfish)

(4): 613 (blood plasma esterase properties of channel catfish, also esterase activity of some other fish blood plasmas)

(5): 625, 635 (physiological & chemical changes in brook trout by handling, anesthetization, & surgery)

(5): 781 (improved vascular catheterization procedure for teleost fish aorta)

(6): 843 (re regulation of zinc retention by rat, when fed P.E.I. oysters)

(6): 903 (habitat of two fluke species in N Pac. rockfishes, re habitat of those fishes)

(7): 947 (pathway effects on pressure drop in teleost gills)

(7): 1053 (genic polymorphism of tetrazolium oxidase in bluefin tuna)

(8): 1173 (glycoproteins constituents levels in Pac. salmon, trouts, & bovine sera)

(8): 1191 (hemolymph amino acids of Dungeness crab)

(8): 1208 ("hemagglutinogens" re mummichog & striped killifish erythrocytes)

(8): 1215 (changes in lactic acid concentrations of stressed alewives)

(10): 1609 (effects on circulation, from artificial manipulation of rainbow trout gills)

(12): 1831 (stresses caused by formalin disinfection of young salmonids)

(12): 1853 (proteins in coho salmon)

T 255 (effects of yellow phosphorus production wastes on several fish species)

S 1489 (proteins binding affinities for sex hormones & corticosteroids in 3 Atl. fishes)

1562 (major androgens in sexually maturing Atl. salmon plasma)

1576 (corticosteroids & testosterone in Atl. sturgeon plasma)

Bloom (see Phytoplankton)

Blubber (see also Whale)

S 1514 (fat composition re Amazon R. dolphin echolocation ability)

Bluefish (*Pomatomus saltatrix*)

T 272 (halogenated hydrocarbon residues detected in)

Bluegill (*Lepomis macrochirus*) (bluegill sunfish)

J 28(1): 113 (sampling flesh for anesthetic residues)

(3): 449 (nitrogen excretion & protein consumption)

(7): 957 (vulnerability to northern pike predation)

Bocaccio (*Sebastes (Sebastodes) paucispinis*)

J 28(6): 903 (habitat of a blood fluke species in)

T 221, 269 (taken during B.C. groundfish surveys)

246 (bibliography)

257 (taken in B.C. trawl fishery, 1970)

Boddington, Martin John

J 28(1): 7 (chemical composition of *Dugesia tigrina*)

(8): 1198 (abnormal sexual organs in fish)

Boese, Helen

J 28(9): 1325 (postmortem changes in fish muscle)

- Bomolochus cuneatus* (parasitic copepod)
J 28(10): 1563 (threespine stickleback & pile perch as new hosts)
- Bone (see also Osteology)
J 28(6): 843 (zinc retention in rat, when fed P.E.I. oysters)
A 229 (aging whales & other mammals by layered structure of: book review)
- Bonito, Atlantic (*Sarda sarda*)
T 261 (bibliography for Gulf of St. Lawrence)
- Book reviews (see Reviews of books)
- Boreogadus saida* (see Cod, arctic)
- Boron derivatives
S 1549 (tropylium ion origin in arylboronic acid esters mass spectra)
- Bose, Robert John
S 1531 (casein and polyethylenimine)
1549 (occurrence and origin of tropylium ion in mass spectra of arylboronic acid esters)
- Bosmina (see Cladocera)
- Bothidae (lefteye flounders) (see also names of species)
T 246 (bibliography of Pac. N America coast)
- Bottom organisms (see Benthos; also names of species)
- Bottom sediments (see Sediments)
- Botulism; *Clostridium botulinum*
J 28(8): 1071 (sodium chloride effects on toxin production in Pac. cod flesh homogenates)
(11): 1733 (acid phosphatase activity in vegetative cells & spores)
S 1585 (amylopectin accumulation in bacterium)
A 201 (re wildlife consumption of Great Lake fishes)
203 (sources of bacterium if found in fishery products)
- Boulder Creek, Colorado (see North Boulder Creek, Colorado)
- Boulva, Jean
J 28(5): 755 (seal whelping observations, Sable Is.)
- Bourget, Edwin
J 28(8): 1205 (epifaunal collectors)
- Bourne, Neil
T 232 (breeding and growth of razor clams in B.C.)
- Boyce, Norbert Patrick Joseph
S 1565 (dissecting instrument with increased accuracy and cutting efficiency)
- Boyd, John William
J 28(8): 1071 (salt tolerance of type E *Clostridium botulinum*)
- Brachiopoda
J 28(10): 1675 (*Terebratalia transversa* sterols)
T 225 (*T. septentrionalis* associated with Bay of Fundy scallop beds)
268 (surveys, B.C. coast since 1960)
- Brachyura (see Crab; Crabs)
- Brain
J 28(4): 610 (dieldrin insecticide residues in green sunfish)
(12): 1837 (lysocleithin solubilizing effect on extractability of tissues, in rainbow trout)
S 1556 (temperature effects on Atl. salmon & brook trout oxygen consumption of)
- Breeding (see Culture; Hatcheries; Reproduction; Spawning)
- Brett, John Roland
J 28(3): 409 (sockeye satiation time, appetite, & maximum food intake)
(10): 1635 (diet-growth responses of salmon)
S 1590 (temperature in fishes)
A 212 (metabolism in fish)
- Brevoortia tyrannus* (see Menhaden, Atlantic)
- Brill, Pacific (see Sole, petrale)
- Brinkhurst, Ralph Owen
J 28(3): 335 (tubificid oligochaetes & bacteria)
(11): 1683 (L. Ontario benthos species diversity)
(11): 1699 (L. Ontario benthos production)
(11): 1715 (L. Ontario benthos community metabolism)
S 1543 (components of bottom fauna; Great Lakes)
- British Columbia (see also Oceanography, Pacific coast; Yoho National Park; also names of localities and bodies of water)
B 178 (Pac. oyster raft culture in)
T 210, 221, 269 (catches during groundfish surveys)
213 (offshore herring surveys)
216, 257 (commercial trawl fishery catch & effort statistics, 1969)
246 (bibliography of trawl fishery & fishes)
A 200 (mercury contamination of fishes & crabs)
- Brittle stars (see Starfishes)
- Brockhoff, Hans
J 28(11): 1793 (effects of oil on cardiac functions of rats)

- T 229 (effects of herring oil on organs of rats)
 S 1462 (substrate specificity of pancreatic lipase)
 1471 (lipase assay based on acetaldehyde liberation from vinyl oleate)
- Brodie, Paul Frederick
 J 28(9): 1309 (white whale life history)
- Brosme brosme* (see Cusk)
- Broughton, Eric
 J 28(3): 448 (subcutaneous fibroma in lake trout in Quebec)
- Brown, Clinton Eugene
 J 28(7): 947 (blood pathway and pressure drop in fish gills)
- Brown, Penelope Louise
 J 28(10): 1433 (relation between tube-building and feeding in Polychaeta)
- Brungs, William Aloysius
 J 28(8): 1119 (low oxygen effects on minnows)
- Brunskill, Gregg John
 J 28(2): 139 (geography and bathymetry of selected basins of FRB Experimental Lakes, NW Ont.)
 (2): 277 (surface sediment chemistry of FRB Experimental Lakes, NW Ont.)
 (11): 1763 (eutrophication of 1 of FRB Experimental Lakes, NW Ont.)
- Bryozoa
 T 225 (associated with Bay of Fundy scallop beds)
- Bubbles
 S 1500 (mathematical physics of formation in bottom sediments)
- Buccinum undatum* (see Whelk, rough)
- Budlong, John Perry
 S 1516 (bridge and amplifier monitor)
 1517 (frequency divider immunity)
- Buffalo, bigmouth (*Ictiobus cyprinellus*)
 J 28(7): 957 (vulnerability to northern pike predation)
- Bullhead, black (*Ictalurus melas*)
 J 28(4): 613 (blood plasma esterase activity)
 (7): 957 (vulnerability to northern pike predation)
 (11): 1811 (alkali tolerance in Nebraska eutrophic lakes & ponds)
- Bullhead, brown (*Ictalurus nebulosus*)
 J 28(9): 1285 (methylmercury in N.B.)
- Bullhead, yellow (*Ictalurus natalis*)
 J 28(4): 613 (blood plasma esterase activity)
- Buoys (see Currents)
- Burbot (*Lota lota*) (maria)
 J 28(1): 105 (DDT residues in muscle of, Saskatchewan R.)
 (7): 1061 (practical drying equipment for fillets & steaks)
 S 1591 (pristane & other hydrocarbons in commercial Canadian oil)
 A 200 (mercury contamination in various Canadian waters)
- Bursa, Adam Stanislaw
 T 267 (Frobisher Bay 1967 phytoplankton tables)
 S 1488 (marine relicts in Canadian arctic lakes)
 1577 (new organisms discovered in Como Creek, Colorado)
 1578 (rare plankton species discovered on Ellesmere Is., N.W.T.)
 1589 (morphogenesis and taxonomy of fossil and contemporary dinophyta secreting discoasters)
- Butler, David Gordon
 S 1526 (feedback mechanism in eels)
- Butler, John
 J 28(9): 1349 (notacanthid collected off Oregon coast)
- Butler, Terrance Henry
 J 28(10): 1615 (records of B.C. shrimp)
 T 241 (bibliography of economically important shrimps)
 S 1518 (biological data on prawn)
- Butterfish (*Peprilus (Poronotus) triacanthus*)
 J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 T 261 (bibliography for Gulf of St. Lawrence)
- Buttkus, Hans
 S 1509 (accelerated denaturation of myosin)
 1561 (sulfhydryl content of rabbit and trout myosins in relation to protein stability)
- By-products, fishery (see also Crabmeal; Fishmeal; Fish protein concentrate; Oils and fats; Shrimpmeal; etc.; also types of processing)
 A 215 (technology of: book review)
- Byssus ("beard")
 B 177 (re paralytic shellfish toxin in E Canada mussels)
- C
- Cabezon (*Scorpaenichthys marmoratus*)
 J 28(10): 1563 (host of a new copepod species)
 T 246 (bibliography)
 257 (taken in 1970 B.C. trawl fishery)
- Caddisflies (Trichoptera) (see also Insects, aquatic)
 J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)

- (6): 849 (samplings from shallow stream bed)
T 258 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
S 1532, 1533 (of a high Colorado mountain creek, including a new species, *Hesperophylax oreades*)
- Caddy, John Frederick
T 225 (fauna in Bay of Fundy scallop dredge hauls)
256 (Georges Bank scallop meat sizes)
S 1551 (study of developments in postlarval *Macoma balthica*)
- Cadmium derivatives
J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
(6): 843 (level in P.E.I. oysters)
(9): 1225 (toxicity tests on mummichogs & various marine organisms)
S 1529 (distribution in L. Ontario)
- Caeca, pyloric
J 28(1): 115 (count, re anadromous vs. freshwater-resident arctic char)
(7): 987 (counts re systematics & evolution of western N America *Salmo* species & subspecies)
(7): 1064 (vs. feces re presence of pancreatic necrosis virus in brook trout)
- Caesium derivatives
A 232 (¹³⁷Cs as radioactive marine pollutant)
- Cairns, John, Jr.
J 28(8): 1107 (computer simulation of pollution minnow deaths)
- Calanoida; *Calanus* (see also Copepoda)
J 28(2): 231, 245 (communities, vertical distribution & abundance in some small NW Ont. lakes)
(9): 1327 (*C. finmarchicus* tolerance to fuel oil spills; fecal sedimentation of oil)
T 248 (*C. pacificus* culture & grazing re marine productivity)
S 1513 (*Calanus* grazing re marine productivity)
A 211 (*C. plumchrus* & *Pseudocalanus minutus* re juvenile Pac. salmon feed)
- Calaprice, John Robert
J 28(3): 369 (X-ray fluorescence analysis of sockeye)
(10): 1583 (X-ray spectrometry)
T 200 (discrimination of salmonids by X-ray analysis)
212 (IBM programs for X-ray data)
222 (genetics & mariculture)
- Calastacus* (crabs)
J 28(10): 1527 (*C. quinqueseratus* range extension off B.C.)
- Calcium derivatives (see also Carbonate; Hardness of natural waters)
J 28(2): 171, 203 (in waters of many small NW Ont. lakes)
(2): 277 (in sediments of 16 small NW Ont. lakes)
(5): 625, 635 (level changes in brook trout after handling, anesthetization, & surgery)
- Caligidae (see also Calanoida; Copepoda)
J 28(3): 323 (taxonomy & nomenclature re *Lepeophtheirus* vs. *Dentigryps*)
(8): 1143 (locomotory mechanisms)
- Caligus* (parasitic copepods) (see also Caligidae)
J 28(8): 1143 (*C. clemensi* locomotory mechanisms)
S 1499 (redescription of *C. rapax*, a misuse of nomenclature since 1850)
- Callinassa* (crabs)
J 28(10): 1527 (*C. gigas* range extension off B.C.)
- Callorhinus ursinus* (see Seal, northern fur)
- Caloric content
J 28(1): 73 (thermal spring biota)
(4): 559 (seasonal, of freshwater zooplankton in 3 small E Ont. lakes, by modified bomb calorimeter)
(5): 711 (2 amphipod species, re bioenergetics, Marion L., B.C.)
(5): 776 (*Pontoporeia affinis* amphipod, Cayuga L., N.Y.)
(7): 971 (*Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)
(8): 1113 (calorie-to-protein ratio re brook trout rations)
- Calorimeter
J 28(4): 559 (modified Phillipson bomb, for small zooplankton samples)
- Camp, Bennie Joe
J 28(5): 788 (analysis of ammonium-nitrogen in artificial seawater aquaria)
- Campbell, James Scott
J 28(3): 452 (world distribution of brook trout, further observations)
- Campbell, Robert Seymour
J 28(5): 705 (pesticide accumulation in invertebrates)

- Cancer borealis* (see Crab, Jonah)
irroratus (see Crab, rock)
magister (see Crab, Dungeness)
- Cannibalism
 J 28(7): 957 (northern pike)
 S 1486 (of young, by adult *Pacifastacus trowbridgii* crayfish)
- Canning; Canned products
 B 177 (effects on paralytic shellfish toxin)
 T 220 (effects of storing sockeye salmon in ice vs. refrigerated sea water, on quality of canned product)
 242 (as for T 220 above, using salt-fortified sea water; also effect of mishandling)
 A 203 (colour enhancement for salmon)
- Canonical analysis (see Mathematical treatment of data)
- Canthaxanthin (see Pigments)
- Cantin, Ruth
 T 202(F) (diatoms as indicators of mine pollution)
- Capelin (Atlantic) (*Mallotus villosus*)
 J 28(7): 935 (winter periodic component of Passamaquoddy Bay fish communities, N.B. & length frequencies)
 (7): 1029 (fecundity of right vs. left ovary)
 T 261 (bibliography for Gulf of St. Lawrence)
 A 181 (ICNAF Canadian 1969 research summary)
 185 (as latent resource for Nfld.)
 193 (biology, distribution, fisheries)
 194 (Nfld. fishery)
 200 (mercury contamination, Hudson Bay)
- Capelin (Pacific) (*Mallotus villosus*)
 A 193 (biology, distribution, fishery)
- Caprella
 J 28(6): 928 (in feed of fluffy & tidepool sculpins)
- Caranx crysos* (see Runner, blue)
- Carapace
 J 28(8): 1191 (fatty & amino acids of Dungeness crab exoskeleton)
- Carassius auratus* (see Goldfish)
- Carbohydrates (see Glucose; Glycogen; Saccharides; Sugars)
- Carbon, particulate (see Matter, particulate)
- Carbon dioxide (see also Carbonate; Respiration)
 J 28(9): 1303 (effect of accumulation on walleye photic behaviour)
 (9): 1342 (measuring production in tilapia)
- Carbonate; Bicarbonate (see also Hardness of natural waters)
 J 28(1): 73 (thermal springs, Mt. Rainier National Park, USA)
 (2): 171, 189, 203 (in waters of many small NW Ont. lakes)
 (11): 1811 (tolerance of freshwater fishes to alkalinity in eutrophic Nebraska lakes & ponds)
 A 199 (calcium carbonate re Gulf of St. Lawrence marine sediment geology)
- Carcharodon carcharias* (see Shark, white)
- Carcinides maenas* (see Crab, green)
- Careproctus longipinnis* (see Snailfish, longfin)
reinhardi (see Tadpole, sea)
- Carotene; Carotenoids (see Pigments)
- Carp (*Cyprinus carpio*)
 J 28(7): 957 (vulnerability to northern pike predation)
 (7): 1057 (effect of warm water of nuclear power plant discharge canal)
 (7): 1061 (practical drying apparatus for fillets & steaks)
 (9): 1345 (migration through brackish coastal waters, B.C.)
 T 261 (bibliography for Gulf of St. Lawrence)
 A 200 (mercury contamination in Red R., Sask.)
 201 (mercury contamination in Great Lakes)
- Carrothers, Percival John Godber
 T 264 (fluid mechanics of netting and low solidity screens. 1. Apparatus, experimental method, and basic data)
- Carson, William Victor
 T 217 (petroleum oils in aquatic environment)
- Casein
 S 1531 (interaction with polyethylenimine, re flocculating power & removal of pollutants)
- Castell, Charles Howell
 J 28(1): 1 (DMA in muscle of gadoid fish)
- Catabolism (see also Metabolism)
 S 1491 (fission of phenylalanine aromatic ring by several classifications of algae)
- Catalase (see Enzymes)
- Catches; Catch effort (see also Angling; Fisheries; Yield)
 J 28(3): 351 (sport vs. maritime commercial fisheries utilization rates of Miramichi R., N.B., salmon)
 (3): 417 (1956-1965 commercial, of Pac. ocean perch by Oregon, Washington, & B.C. trawlers)

- (8): 1211 (advantages & limitations of fishery catch & effort mathematical models)
- B 175 (commercial, of oysters in Maritime Provinces & USA)
- CJG 18: 1 (Nfld herring purse-seining, 1965-1970)
- CNG 91 (steelhead trout age & size, in Vancouver Is. stream angling)
- T 210, 221, 269 (during B.C. groundfish surveys)
- 213 (during B.C. offshore herring surveys)
- 216, 257 (summary of B.C. & U.S. Pac. coast commercial trawling, also catches per unit effort, 1969, 1970)
- 246 (bibliography of N America Pac. coast trawling)
- 250 (computer programming fish catch data)
- 270 (various breakdowns of Canadian Atl. salmon)
- S 1492 (per unit effort, of haddock off Digby, N.S.)
- 1493 (commercial landings by countries, re Atl. cod trawl mesh size)
- 1540 (per unit effort assessments for ICNAF Subareas 2 & 3 major cod stocks)
- 1541 (American plaice fishery trends in ICNAF Subarea 3)
- A 192 (N Atl. salmon by countries, 1961-67)
- 204 (experimental, of salmon & steelhead trout during INPFC studies, 1965)
- 207 (Atl. herring, N.B. & N.S., 1961-69)
- Catfish, channel (*Ictalurus punctatus*)
- J 28(1): 113 (sampling muscle for anesthetic residues)
- (4): 613 (esterase properties of blood plasma)
- (5): 783 (slime as bacterial medium re keeping quality)
- (7): 957 (vulnerability to northern pike predation)
- A 201 (mercury contamination in Great Lakes)
- Catfish, white (*Ictalurus catus*)
- J 28(7): 1507 (effect of warm water of nuclear power plant discharge canal)
- Catheterization
- J 28(5): 781 (improved vascular procedure for Salmonidae)
- Catostomus catostomus* (see Sucker, longnose)
- commersoni* (see Sucker, white)
- macrocheilus* (see Sucker, largescale)
- Cayuga Lake, New York
- J 28(5): 776 (*Pontoporeia affinis* amphipod caloric & lipid content)
- Census (see also Abundance; Angling; Populations)
- J 28(5): 755 (whelping harbour seals, Sable Is., N.S.)
- T 224 (computer programming ringed seal population data)
- Centrales
- J 28(2): 265 (dominant diatom group in many small NW Ont. lakes)
- Centroscyllum fabricii* (see Dogfish, black)
- Cephalins
- S 1474 (fatty acid composition, in rainbow smelts)
- Cephalopoda (see also Octopus; Octopuses; Squid; Squids)
- S 1546 (NW Atl. resources & fisheries possibilities)
- Ceratius holboellii* (see Angler, deepsea)
- Cercariae (see Flukes)
- Ceriantharia* (see Sea anemones)
- Cestoda (tapeworms)
- J 28(1): 31 (*Fistulicola plicatus* in N Atl. swordfish)
- (10): 1385 (various Polychaeta as intermediate hosts of)
- T 160 (*Scolex pleuronectes* in *Lepidion eques* morid fish)
- S 1520 (*Hepatoxylon trichiuri* from giant squid, Nfld., as clue to squid's feed)
- A 181 (*Eubothrium crassum* as parasitic indicator of geographical origin of Atl. salmon stocks)
- 224 (*Triacnophorus crassus* incidence in northern pike, whitefish, & cisco, Heming L., Man.; also incidence of Cestoda in N American, USSR, & European coregonids)
- Cetacea (see Dolphin; Porpoise; Whale)
- Cetorhinus maximus* (see Shark, basking)
- Chaetognatha (arrow worms)
- J 28(7): 971 (*Sagitta elegans* life history, ecology, & mathematical model of population, St. Margaret's Bay, N.S.)
- T 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Chandler, Ross Allan
- A 221 (20-million-year-old geological "catch")
- Chaoborinae
- J 28(2): 257 (in zoobenthos of 15 small NW Ont. lakes)
- Chapman, Martin John
- J 28(6): 879 (enolase from lobster)
- Char (see Trout, lake)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Char, arctic (*Salvelinus alpinus*)
 T 231 (N America distribution of anadromous & landlocked forms; taxonomy; biology; test production in Keyhole L., Canadian Arctic)
 261 (bibliography for Gulf of St. Lawrence)
- Char, lake (see Trout, lake)
- Chatterton, Katherine
 J 28(4): 606 (blood chemistry values for juvenile coho salmon)
- Chau, Yiu Kee
 S 1529 (trace elements and chlorophyll in L. Ontario)
- Chawla, Vinod Kumar
 S 1529 (trace elements and chlorophyll in L. Ontario)
- Checklists (see also Fishes, lists of; Invertebrates)
 J 28(10): 1407 (compendium of 504 species in 242 genera & 52 families of abyssmal polychaetous annelids)
 B 176 (synopsis of Canadian arctic, Pac., & Atl. marine zooplankton)
 S 1470 (distributional, of B.C. marine molluscs, from surveys since 1950)
- Chedabucto Bay, N.S. (re 1969 Bunker C fuel oil spill)
 J 28(9): 1327 (copepods tolerance to spill residues)
 (12): 1912 (residues concentration in waters, Apr. 1971)
 T 217 (nature of spill constituents)
 S 1569 (contamination of aquatic animals)
 A 223 (study of, & combating spill)
- Chelae (see Claws)
- Chelating agents (EDTA, etc.)
 J 28(2): 209 (effects on photosynthesis when used with nutrients added to samples of lake waters)
 T 258 (toxicity tests of trisodium nitrilotriacetate as detergent re pollution)
 A 203 (not recommended as suppressor of fish odours)
- Chemical composition (see Composition, chemical)
- Cheng, Joseph Yim-hung
 S 1491 (fission of phenylalanine by marine algae)
- Chesapeake Bay, Maryland
 J 28(6): 911 (particulate carbon:nitrogen relations)
- Chile
 J 28(8): 1077 (physical oceanographic features of 32 fiords & inlets, also of some adjacent waters)
- Chilipepper (*Sebastes* (*Sebastodes*) *goodei*)
 T 246 (bibliography)
- Chilling (see also Ice; Refrigeration; Superchilling)
 T 220 (effects of storing sockeye salmon in refrigerated sea water vs. ice on quality of canned product)
 242 (as for T 220 above, using salt-fortified refrigerated sea water)
 A 203 (resume of T 220 & T 242 above)
- Chilton, Doris Elizabeth
 T 259 (commercial landings of western Canadian rock sole)
- Chin, Christopher
 J 28(6): 879 (enolase from lobster)
- Chionoecetes bairdi* (see Crab, tanner)
opilio (see Crab, queen)
tanneri (see Crabs)
- Chirolophis ascanii* (see Warbonnet, Atlantic)
- Chironomidae (see also Diptera; Insects, aquatic)
 J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
 (2): 257 (of zoobenthos in 15 small NW Ont. lakes)
 (6): 928 (in feed of fluffy & tidepool sculpins)
 (11): 1683 (associations & species diversification, L. Ontario bays)
 T 258 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
 S 1532, 1533 (distribution in high mountain North Boulder Creek, Colorado)
 1536 (deformed larvae of several species in L. Erie & Okanagan R. lakes, B.C., possibly a result of herbicide, insecticide or detergent pollution)
 1543 (of Georgian Bay, L. Erie, & L. Ontario)
 1588 (nomenclature & phylogeny of *Harnischia*)
- Chittenden, Mark Eustace, Jr.
 J 28(12): 1823 (oxygen requirements of striped bass)
- Chloeia entypa* (see Polychaeta)
- Chloride (for general data re natural waters, see Limnology; Oceanography; Waters, natural)
 J 28(5): 625, 635 (level changes in brook trout after handling, anesthetization, & surgery)
- Chlorinity (of sea water) (see also Oceanography; Salinity)
 S 1472 (phenosafranin indicator for titrations)
- Chlorophyceae (see Chlorophyta)
- Chlorophylls (see also Algae; Photosynthesis; Phytoplankton; Plankton; Production, primary)
 J 28(2): 171, 189, 203 (a in waters of many small NW Ont. lakes)
 (2): 203 (re photosynthesis as affected by added nutrients to samples of water from small NW Ont. lakes)

- (2): 215 (a content of periphyton in 4 small NW Ont. lakes)
 (2): 295 (re differences & similarities among small NW Ont. lakes)
 (5): 790 (re photosynthesis as affected by nitrogen, phosphorus, & iron enrichment of N Pac. sea waters)
 T 265 (a, b, & c in waters & ice, re primary production, Frobisher Bay, Baffin Is., N.W.T.)
 S 1466 (re large-scale primary productivity studies in N Pac. Ocean)
 1528 (chemical fate in 50,000,000-year-old shale from lake sediments)
 1529 (distribution of a in L. Ontario, re distribution of trace elements)
 1586 (25-hour budget of production, export & grazing, Bedford Basin, N.S.)
- Chlorophyta (see also Algae; Phytoplankton; Plankton; Seaweeds)
 J 28(2): 192, 215 (of several small NW Ont. lakes)
 (11): 1763 (effect of nitrate & phosphate addition on abundance in small NW Ont. lake)
- Choi, Paul Mun Keung
 T 272 (PCB and other industrial halogenated hydrocarbons in the environment)
- Cholesterol (see Sterols)
- Choline derivatives
 J 28(4): 613 (acetylcholine esterase activity of various fish plasmas; anticholinesterase activity of various pesticides)
- Chondrococcus columnaris* (see *Columnaris* disease)
- Chondrophora (see Jellyfish)
- Choquette, Laurent Paul Emile
 J 28(3): 448 (subcutaneous fibroma in lake trout in Que.)
- Chromatography (Note: This widely used procedure is no longer indexed separately; see materials to which it is applied)
- Chromium derivatives
 J 28(2): 277 (in sediments of 4 small NW Ont. lakes)
 (5): 786 (in dressed Canadian fishes from industrial area lakes)
 S 1529 (distribution in L. Ontario)
- Chromobacterium* (see also Bacteria)
 J 28(10): 1511 (isolates associated with surfaces of hatching Pac. salmon eggs)
- Chromosomes (see also Cytology; Genetics)
 J 28(11): 1745 (diploid components of large & dwarf white suckers & of longnose sucker)
- Chrosomus eos* (see Dace, northern redbelly)
- Chrysophyceae (see also Algae; Diatoms; Phytoplankton; Plankton)
 J 28(2): 194, 215 (of several small NW Ont. lakes)
 (11): 1763 (effect of nitrate & phosphate addition to abundance in small NW Ont. lake)
 S 1491 (ability to cleave phenylalanine aromatic ring)
 A 211 (*Monochrysis lutheri* for zooplankton grazing experiments)
- Chub, creek (*Semotilus atromaculatus*)
 J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
 (9): 1285 (methylmercury in N.B.)
- Chub, flathead (*Hybopsis gracilis*)
 J 28(10): 1645 (host to new trematode species, Alta.)
- Chub, hornyhead (*Nocomis (Hybopsis) biguttatus*)
 J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Chub, lake (*Couesius plumbeus*) (*Hybopsis plumbea*)
 J 28(10): 1645 (host to new trematode species, Alta.)
- Chub, river (*Nocomis (Hybopsis) micropogon*)
 J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Chuba, Joseph V.
 J 28(8): 1208 (killifish "hemagglutinogens")
- Ciliata
 J 28(3): 391 (ultrastructural & incomplete symbionts, taxonomy, & key, of red-water ciliate *Mesodinium*: review)
 T 267 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1559 (culture characteristics & feed of *Uronema*)
- Circulation (of blood) (see Blood; Gills; Hemoglobin; Respiration)
- Circulation (of waters) (see also Currents; Eutrophication; Hydrography; Limnology; Oceanography; Tides; Transport, mass)
 T 271 (patterns in Gulf of St. Lawrence, June 1968 & Sept. 1969)
- Cirripedia (see Barnacles)
- Cirrutulidae (see Polychaeta)

- Cisco, lake (*Coregonus artedii*) (lake herring; tullibee)
 J 28(6): 924 (larval growth & survival temperature requirements)
 T 261 (bibliography for Gulf of St. Lawrence)
 S 1591 (pristane & other hydrocarbons in commercial Canadian oil)
 A 200, 201 (mercury contamination in various Canadian waters)
 224 (parasites)
- Citharichthys sordidus* (see Sanddab, Pacific)
stigmaeus (see Sanddab, speckled)
- Cladocera (see also Crustacea; Zooplankton)
 J 28(2): 231, 245 (*Bosmina*, *Holopedium*, *Daphnia*, etc. common to many small NW Ont. lakes)
 (2): 245 (vertical distribution & seasonal abundance in 2 small shallow NW Ont. lakes)
 (3): 311 (of 146 W Canadian alpine & subalpine lakes & ponds)
 (4): 559 (seasonal calorific values, from 3 small E Ont. lakes)
 (5): 705 (biological magnification & degradation of insecticides by)
- Clam, arctic wedge (*Mesodesma arctatum*)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Clam, bar (*Spisula (Macra) solidissima*)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Clam, butter (*Saxidomus giganteus*)
 J 28(11): 1789 (melanin distribution in, re retention of paralytic shellfish toxin, B.C.)
- Clam, hardshell (see Quahaug, northern)
- Clam, littleneck (Atlantic) (see Quahaug, northern)
- Clam, ocean (see Quahaug, ocean)
- Clam, razor (Atlantic) (*Ensis directus*)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Clam, razor (Pacific) (*Siliqua patula*)
 T 232 (breeding & growth, Queen Charlotte Is. & W coast Vancouver Is.)
- Clam, softshell (Atlantic) (*Mya arenaria*)
 J 28(1): 59 (DDT residues in N.B. & P.E.I.)
 (5): 793 (yellow phosphorus concentration in body, N.S.)
 (9): 1225 (cadmium toxicity tests)
 B 177 (re paralytic shellfish poisoning, E Canada)
 T 217 (pollution from petroleum oil spills)
 S 1569 (determination of residual fuel oil contamination in)
- Clam diggers' itch
 A 58(F) (cause, control, & treatment)
- Clam drill, greater (*Lunatia (Polinices) heros*) (moon shell; moon snail)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Clams
 J 28(2): 257 (*Pisidium conventus* & *P. casertanum* common in many small NW Ont. lakes)
 S 1551 (development of postlarval *Macoma balthica* mantle organs, feeding, & locomotion)
 A 221 (ancient, forming core of rock concretions, found later as "holed stones")
- Clark, A. S.
 J 28(4): 559 (freshwater zooplankton calorific values)
- Clarke, William Craig
 S 1526 (feedback mechanism in eels)
- Classification (see Genera; Keys; Nomenclature; Phylogeny; Speciation; Species; Taxonomy)
- Classification (cluster analysis) (see also Associations; Communities)
 S 1580 (& ordination of many shallow-water benthic species, P.E.I.)
- Claws
 T 235 (role of chelae in lobster aggressiveness)
 S 1465 (role in crayfish mating)
 1555 (shuddering behaviour during green shore crab attempted male-male mating)
- Clayton, James Wallace
 J 28(7): 1005 (walleye malate dehydrogenase isozymes)
- Cleansing (see Depuration; Disinfection; Washing)
- Cleugh, Thomas Reginald
 J 28(2): 129 (initial survey of FRB Experimental Lakes, NW Ont.)
- Climate (see also Precipitation)
 J 28(2): 142, 265 (of FRB Experimental Lakes Area, NW Ont.)
 S 1476 (implementation of Canadian ocean engineering, chemical oceanography & geochemistry re climatology)
- Clostridium botulinum* (see Botulism)
- Clupea harengus harengus* (see Herring, Atlantic)
pallasi (see Herring, Pacific)
- Cobalt derivatives
 J 28(2): 277 (in sediments of 4 small NW Ont. lakes)
 (5): 643 (⁶⁰Co for irradiation of bacteria in smoked fish)
 S 1529 (distribution in L. Ontario)
 A 232 (⁶⁰Co as marine radioactive pollutant)
- Coble, Daniel W.
 J 28(7): 957 (northern pike predation)

Cod, arctic (*Boreogadus saida*)

- T 261 (bibliography for Gulf of St. Lawrence)
 266 (Frobisher Bay, Baffin Is., N.W.T.)

Cod, Atlantic (*Gadus morhua*)

- J 28(1): 1 (dimethylamine production in dark muscle during frozen storage)
 (1): 59 (DDT residues in N.B.)
 (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B.; length frequencies)
 (7): 947 (blood pathways effects on blood-pressure drop in gills)
 (8): 1125 (purines changes in iced fillets)
 (9): 1285 (methylmercury in Bay of Fundy & N.S. Banks)
 T 225 (associated with Bay of Fundy scallop beds)
 260 (standing crop, availability, lengths, weights, etc., from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
 272 (halogenated hydrocarbon residues detected in)
 S 1489 (binding affinities of blood proteins for sex hormones & corticosteroids in)
 1493 (assessment of effects of trawl mesh size increases)
 1540 (catch-effort assessments for ICNAF Subareas 2 & 3 major stocks)
 1591 (pristane & other hydrocarbons in commercial Canadian liver oil)
 A 181, 182 (ICNAF 1969 Canadian research summaries; also (181) parasite indicators of geographical origin of stocks)
 194, 195 (Nfld. & Labrador)
 200 (mercury contamination)

Cod, black (see Sablefish)

Cod, longfin (Pacific) (*Antimora rostrata*)

- T 221 (taken in B.C. groundfish surveys)

Cod, Pacific (*Gadus macrocephalus*)

- J 28(6): 883 (salinity, temperature, & dissolved oxygen effects on egg development re geographical distribution)
 (8): 1071 (sodium chloride effects on *Clostridium botulinum* growth & toxin production in flesh homogenates)
 T 216, 257 (catches during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
 221 (catches during B.C. groundfish surveys)
 246 (bibliography)

Cods (Gadidae) (see also Burbot; Cod; Hake; Pollock; Tomcod)

- T 246 (bibliography)

Coelenterata (see also Jellyfish)

- T 225 (associated with Bay of Fundy scallop beds)
 266 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1532 (*Hydra* of a high mountain brook, Colorado)

Cohorts (see also Populations)

- J 28(10): 1573 (mathematical models re animal production-biomass ratio)

Cold storage (see also Chilling; Freezing; Refrigeration)

- S 1461 (thermistor readout monitoring system for temperatures)

Coleoptera (see also Insects, aquatic)

- J 28(6): 849 (samplings from shallow stream bed)

Collecting, of specimens (see also Sampling; Trap)

- J 28(8): 1209 (2 simple durable epifaunal collectors)

Collembola

- S 1522 (*Podura aquatica* in a high Colorado mountain creek)

Collins, John Joseph

- J 28(12): 1857 (transfer of salmon eggs)

Colour; Coloration (see also Pigments)

- J 28(2): 171, 295 (of waters of small NW Ont. lakes, re similarities & differences among the lakes)

Columnaris disease (from *Chondrococcus columnaris*)

- J 28(4): 553 (Columbia R. fish ladders influence on)
 (9): 1253 (young rainbow trout & coho salmon antibody production & immunity responses; also vaccination)
 (11): 1731 (factors re rainbow trout & chinook salmon susceptibility to)

Colus stimpsoni (see Spindle shell)

Communities (see also Associations; Populations)

- J 28(2): 215 (epilithic diatoms in 4 small NW Ont. lakes)
 (2): 231 (crustacean plankton in 45 small NW Ont. lakes)
 (3): 311 (planktonic Crustacea in 146 W Canadian alpine & subalpine lakes & ponds)
 (7): 935 (fish: seasonal components in Passamaquoddy Bay, N.B., re communities in warmer waters)
 (11): 1683 (benthic macroinvertebrates, L. Ontario bays)
 (11): 1715 (metabolism of benthic macroinvertebrates, L. Ontario bays)
 (11): 1733 (production potential of seaweed-lobster community, St. Margaret's Bay, N.S.)

- S 1532 (invertebrates in high mountain North Boulder Creek, Colorado)
- Como Creek, Colorado
S 1577 (two new dinoflagellate species & associated microflora)
- Compendium (see Checklists)
- Competition (see Aggression; Feed)
- Composition, chemical (see also Acids, amino; Acids, fatty; Analysis methods (chemical); Limnology; Nutrients, aquatic; Oceanography; Waters, natural)
J 28(1): 7 (seasonal changes in freshwater triclad flatworm *Dugesia tigrina*)
(2): 129, 171, 203 (many small NW Ont. lakes water)
(2): 215 (periphyton in 4 small NW Ont. lakes)
(2): 277 (sediments in 16 small NW Ont. lakes)
(3): 369 (sockeye salmon by X-ray spectrometric & multivariate analysis as indicator of geographic sources)
(4): 587 (of water in rainbow trout acclimation tanks)
(4): 606 (juvenile coho salmon blood)
T 200 (multiple discrimination analysis of data from J 28(3): 369 reference above)
217 (petroleum oils re determining origin of polluting spills)
246 (N America Pac. coast trawled fishes: bibliography)
- Computer programming (see also Mathematical treatment of data; Models, mathematical)
J 28(1): 102 (plotting bathythermograph transect data on a printer)
(3): 443 (migration capture-recapture stochastic model)
(3): 446 (electronic processing of fishery research acoustical data)
(4): 573 (fry enumeration in streams)
T 209 (storage & retrieval of indexed & annotated bibliographical references)
212 (multiple discrimination analysis of X-ray spectroscopic data)
224 (analysis of ringed seal population data)
235 (agonistic behaviour of lobsters)
244 (multivariate analysis for fisheries biology)
250 (principle & operation of fish catch & pollution information system)
- Condition
B 178 (of raft-cultured Pac. oyster in B.C.)
- Conductivity, electrical
J 28(2): 129, 183 (of waters of many small NW Ont. lakes)
- Connolly, G. F.
J 28(11): 1815 (dispenser for oxygen reagents)
- Conover, Robert James
J 28(9): 1327 (relation of zooplankton & oil following wreck of tanker *Arrow*)
S 1482 (study of eutrophicated marine basin)
1586 (effect of plankton grazing in small marine basin)
- Conservation (see Ecology; Management; Pollution)
- Consumption of fish & fish products as food for man (see Food)
- Contracaecum aduncum* (see Nematoda)
- Cooking; Precooking (see also Canning; Quality of fishery products)
B 177 (effects on paralytic shellfish toxin in clams, etc.)
T 249 (detecting marine oil adulteration of all-vegetable margarine & cooking fats)
A 203 (precooked fish in batter)
- Cooling (see Chilling; Ice; Refrigeration; Seawater, refrigerated)
- Coombs, J. F.
J 28(12): 1883 (Manitoulin lakes limnology)
- Coote, Arthur Renton
J 28(11): 1815 (dispenser for oxygen reagents)
- Copelata
T 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Copepoda (see also Crustacea; Zooplankton)
J 28(1): 23 (*Calanus finmarchicus* re *C. glacialis* adult male taxonomy)
(2): 231, 245 (*Tropocyclops*, *Mesocyclops*, *Cyclops*, *Senecella*, *Limnocalanus* & *Diaptomus* species common in many small NW Ont. lakes)
(2): 245 (vertical distribution & seasonal abundance in 2 small shallow NW Ont. lakes)
(3): 311 (of 146 W Canadian alpine & subalpine lakes & ponds)
(3): 323 (*Lepeophtheirus* species parasitic to ocean sunfish: taxonomy & nomenclature re *Dentigryps*)
(4): 559 (seasonal calorific content, from 3 small E Ont. lakes)
(6): 928 (differential consumption of, by tide-pool vs. fluffy sculpins cohabiting in tide pools)
(8): 1143 (*Lepeophtheirus salmonis*, & *Caligus clemensi* locomotory mechanisms)
(9): 1327 (tolerance of *Calanus finmarchicus* & *Temora longicornis* to fuel oil, & their fecal sedimentation of oil)
(10): 1563 (2 new species & 1 new record of *Holobomolochus*; 2 new hosts of *Bomolochus cuneatus*)
T 160 (parasitic to *Lepidion* fishes)

- 248 (*Calanus pacificus* culture & grazing on diatoms, re productivity)
 252 (biomass off N.S. coast)
 266 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1485 (importance & general implications of organic matter in aquatic environments re filter-feeding of)
 1496 (new parasitic genus & species: *Proclavelodes pillaii*, from S India)
 1499 (redescription of *Caligus rapax*)
 1501 (*Haemobaphes* in B.C. waters, including a new species *H. intermedius*; also *H. diceraus*)
 1566 (new species *Lernanthropus togatus* parasitic to gills of marine Kenyan fish *Gaterin*)
 1568 (Eudactylinidae & Pseudocycnidae parasitic on Australian fishes)
 A 211 (*Calanus plumchrus* & *Pseudocalanus minutus* re juvenile Pac. salmon feed)
- Copper derivatives
 J 28(5): 655 (long-term effects of sulphate concentrations on brook trout adults, spawning, eggs, & fry)
 (5): 786 (in dressed Canadian fishes from industrial area lakes)
 (6): 843 (level in P.E.I. oysters)
 T 202 (diatoms as indicators of, and effects of, in NW Miramichi R. basin, N.B.)
 S 1529 (distribution in L. Ontario)
 1553 (re mining effluent effects on NW Miramichi R. vascular plants)
 A 222 (avoidance reaction sensitivity to sub-lethal levels by Atl. salmon & brook trout)
- Copulation) *see* Mating; Reproduction)
- Corals
 T 225 (associated with Bay of Fundy scallop beds)
- Coregonids (*see also* subclassifications)
 T 151 (bibliography of)
 A 224 (world distribution; parasites of many European *Coregonus* species)
- Coregonus artedii* (*see* Cisco, lake)
clupeaformis (*see* Whitefish, lake)
 world distribution & parasites (*see* A 224)
- Corer
 J 28(3): 365 (simple corer vs. Ekman grab for sampling shallow-water benthos)
- Cormorant, common (*Phalacrocorax carbo*)
 T 272 (halogenated hydrocarbon residues detected in body)
- Cormorant, double crested (*Phalacrocorax auritus*)
 T 272 (halogenated hydrocarbon residues detected in eggs)
- Cornick, John Walter
 CHN 40 (gaffkemia & storage temperatures re red crab)
 41 (gaffkemia among stored lobsters)
 42 (gaffkemia control in lobster storage facilities)
- Corrections
 J 28(8): 1219 (to recent articles in this Journal)
- Cortisol; Cortisone (*see also* Hormones; Steroids)
 J 28(4): 477, 485 (histological effects on various tissues of gonadectomized sockeye salmon)
- Coryphaena hippurus* (*see* Dolphin)
Coryphaenoides rupestris (*see* Grenadier)
 Cottidae (*see* Cabezon; Sculpin; Sculpins)
Cottunculus microps (*see* Sculpin, polar)
Cottus bairdi (*see* Sculpin, mottled)
rhotheus (*see* Sculpin, torrent)
Couesius plumbeus (*see* Chub, lake)
- Counting; Enumeration
 J 28(4): 573 (technique for stream-migrating kokanee fry; also computer programming of data)
 (7): 1035 (quick statistical methods for analyzing digital echo fish count sequences)
 T 215 (photo-electric fish counter)
 S 1503 (suspended particles in sea water with Coulter counter)
- Courtship (*see also* Mating; Reproduction; Spawning)
 S 1535 (chinook salmon gonadotropin effect on sexual behaviour of hypophysectomized & gonadectomized female guppies)
- Cow (*Bos typicus primigenius*)
 J 28(8): 1173 (glycoproteins constituents levels of blood sera re those of Pac. salmon & trout)
- Cowley, Leonard Joseph
 T 254 (phosphorus levels in Nfld. water)
- Cox, Robert Edwin
 S 1528 (geological fate of chlorophyll)
- Crab, box (*Lopholithodes mandtii*)
 T 210 (taken during B.C. trawl surveys)
- Crab, deep-sea red (*Geryon quinquedens*)
 CHN 40 (recommended live storage temperatures; resistance to gaffkemia lobster disease)
 S 1527 (muscle sterols)

- Crab, Dungeness (*Cancer magister*)
 J 28(8): 1191 (amino acid & fatty acid composition of tissues)
 T 257 (taken in 1970 B.C. trawl fishery)
 A 200 (mercury contamination, B.C.)
- Crab, green (*Carcinides maenas*)
 J 28(9): 1225 (cadmium toxicity tests)
 S 1527 (muscle sterols)
- Crab, green shore (*Hemigrapsus oregonensis*)
 S 1555 (claw-shuddering behaviour during attempted male-male mating)
- Crab, Jonah (*Cancer borealis*)
 S 1527 (muscle sterols)
- Crab, queen (*Chionoecetes opilio*) (snow crab)
 J 28(4): 509 (wastes carotenoids; also as feed to improve brook trout pigmentation)
 T 204 (tag recaptures & movements of male, Gaspé region of Gulf of St. Lawrence)
 S 1527 (muscle sterols)
 A 217(F) (synopsis of biology & fishery)
- Crab, rock (*Cancer irroratus*)
 J 28(9): 1285 (methylmercury in, off N.S.)
 T 217 (pollution from petroleum oil spills)
 S 1527 (muscle & egg sterols)
 1569 (determination of residual fuel oil contamination in)
- Crab, snow (see Crab, queen)
- Crab, tanner (*Chionoecetes bairdi*)
 T 257 (taken in B.C. trawl fishery, 1970)
- Crab, toad (*Hyas araneus*)
 S 1527 (muscle & egg sterols)
- Crabmeal (see also Fishmeal)
 J 28(4): 509 (for feeding brook trout to improve pigmentation)
- Crabs
 J 28(10): 1527 (several new distribution records, including *Chionoecetes tanneri*, in or to B.C.)
 T 255 (associated with Bay of Fundy scallop beds)
 S 1527 (*Erimacrus isenbeckii* (Japanese) muscle sterols)
 A 200 (mercury contamination of B.C. & Canadian Atl. coastals)
- Crabs, hermit (Anomura)
 J 28(9): 1225 (cadmium toxicity tests)
 (9): 1285 (methylmercury in *Pagurus* off N.S.)
 (10): 1527 (20 new distribution records & 3 new species, *Pagurus caurinus*, *P. quaylei* & *P. stevensae*, in B.C.)
- S 1527 (*Pagurus longicarpus* & *P. bernhardus* muscle & egg sterols)
 1569 (determination of residual fuel oil contamination in)
- Craig, Peter C.
 J 28(1): 115 (meristic differences in *Salvelinus alpinus*)
- Crangon septemspinosa (see Shrimp, sand)
- Crangonyx richmondensis occidentalis (see Amphipoda)
- Crania californica (Brachiopoda)
 T 268 (in B.C. faunistic surveys since 1960)
- Crappie, black (*Pomoxis nigromaculatus*)
 J 28(7): 957 (vulnerability to northern pike predation)
- Crappie, white (*Pomoxis annularis*)
 J 28(7): 957 (vulnerability to northern pike predation)
- Crassostrea gigas (see Oyster, Pacific)
 virginica (see Oyster, Atlantic)
- Crayfishes (freshwater)
 S 1465, 1468, 1486 (*Pacifastacus trowbridgii* copulatory, egg-laying, & maternal-offspring behaviour)
 1527 (muscle sterols)
 1557 (temperature & photoperiod effects on *Orconectes virilis* ovarian maturation & egg-laying)
- Creaser, Edwin Philip, Jr.
 J 28(7): 1049 (water-sampling receptacle for mud flats)
- Cressoniella montana (see Diptera)
- Cristispira (spirochaete)
 S 1469 (occurrence in 12 of 62 W Canada marine bivalve species)
- Cristivomer namaycush (see Trout, lake)
- Crop, standing
 J 28(5): 711 (of 2 amphipod species, Marion L., B.C., re bioenergetics & secondary production)
 T 260 (Scotian Shelf groundfishes)
- Cross, Ford A.
 J 28(11): 1783 (distribution of radioactive zinc in marine ecosystem)
- Crustacea (see also subclassifications and names of species)
 J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
 (2): 231 (communities in plankton of 45 small NW Ont. lakes)

- (2): 245 (vertical distribution & seasonal abundance in 2 shallow NW Ont. lakes)
 (3): 311 (planktonic, of 146 W Canadian alpine & subalpine lakes & ponds)
 (4): 509 (shrimp & crab processing wastes for trout feed)
 (6): 928 (in feed of fluffy & tidepool sculpins)
 (11): 1683 (benthic macroinvertebrates associations & species diversity, L. Ontario bays)
 T 225 (associated with Bay of Fundy scallop beds)
 S 1527 (flesh sterols of 14 species; egg sterols of 3 species)
 1567 (as enemies of fishes, re diseases)
 A 224 (parasitic to N American, USSR, & European coregonid fishes)
- Cryo-preservation (see Superchilling)
- Cryptacanthodes maculatus* (see Wrymouth)
- Cryptochironomus* (Chironomidae)
 S 1588 (re synonymy with *Harnischia*)
- Cryptocladopelma* (Chironomidae)
 S 1588 (re synonymy with *Harnischia*)
- Cryptophyceae
 J 28(2): 195 (of several small NW Ont. lakes)
 S 1491 (ability to cleave phenylalanine aromatic ring)
- Cryptosaras couesi* (see Angler, lesser deepsea)
- Ctenophora
 T 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Culaea inconstans* (see Stickleback, brook)
- Culex pipiens* (see Mosquito)
- Cultch (see Culture)
- Culture (invertebrates) (see also Bacteria)
 B 177 (*Gonyaulax tamarensis* re paralytic shellfish poisoning)
 178 (re raft culture of Pac. oysters in B.C.)
 T 248 (*Calanus pacificus* copepod fed diatoms)
 262 (utilizing warm effluent from steam-electric power plants)
 S 1559 (characteristics of *Uronema* ciliate)
 A 211 (re primary & secondary biomass feed production)
 213 & 213(F) (artificial rearing of lobsters)
- Culture (vertebrates) (see also Hatcheries; Feed; Rations)
 J 28(4): 517 (first vibriosis records in Canadian cultured Pac. salmon; correction on J28(8): 1219)
- (8): 1113 (calorie-to-protein ratio for brook trout rations)
 T 165(F) (rainbow trout farming in central Canada)
 222 (mariculture re genetics)
 236 (mud dab eggs & larvae)
 243 (sablefish: progress in 1970)
 262 (utilization of warm effluent from steam-electric power plants)
 S 1502 (automatic wet-feed dispenser for salmonids)
 A 211 (pink salmon eggs)
 214 (fish farming; sex hormones to delay or accelerate maturation)
- Cumberland Sound, Baffin Island, N.W.T.
 J 28(9): 1309 (white whale growth, reproduction, & behaviour)
- Cunner (*Tautoglabrus adspersus*)
 T 255 (yellow phosphorus toxicity tests)
 261 (bibliography for Gulf of St. Lawrence)
- Cunningham, Carl Cleveland
 S 1473 (phenosafranin indicator for chlorinity titrations)
- Curd (in canned products)
 T 220 (effects of storing sockeye salmon in ice vs. refrigerated sea water, on incidence of)
- Cured fish products (see Drying)
- Curl, Herbert, Jr.
 J 28(5): 790 (influence of nutrient enrichment on N Pac. phytoplankton)
- Currents, marine (see also Hydrography; Oceanography; Tides; Transport, mass)
 J 28(10): 1403 (re amphipacific distribution of polychaetes)
 T 219 (St. Margaret's Bay, N.S.)
 253 (velocity program & examples of records, from moored meters in Strait of Georgia, 1968-70)
 271 (Gulf of St. Lawrence circulation patterns, June 1968 & Sept. 1969)
 S 1539 (re capacity of marine estuaries to accept pollutants; use of dyes to follow flushing action)
- Cusk (*Brosme brosme*)
 J 28(1): 1 (dimethylamine formation in dark muscle during frozen storage)
 T 225 (associated with Bay of Fundy scallop beds)
 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)

- Cyanide
T 255 (toxicity tests in brook trout)
- Cyanophyta (see also Algae; Phytoplankton; Plankton)
J 28(2): 192, 215 (of several small NW Ont. lakes)
S 1491 (ability to cleave phenylalanine aromatic ring)
- Cyclops bicuspidatus thomasi* (see Copepoda)
- Cyclopterus lumpus* (see Lumpfish)
- Cyclotella*
J 28(2): 265 (dominant diatoms in many small NW Ont. lakes)
- Cyclothone microdon* (see Anglemouth, veiled)
- Cyclotrichium meunieri* (a ciliate) (see also *Mesodinium*)
J 28(3): 391 (proposed change to genus *Mesodinium*)
- Cymatogaster aggregata* (see Perch, shiner)
- Cyprina islandica* (see Quahaug, ocean)
- Cyprinodon variegatus* (see Minnow, sheepshead)
- Cyprinus carpio* (see Carp)
- Cystophora cristata* (see Seal, hooded)
- Cytology (see also Chromosomes; Genes; Histology)
J 28(1): 104 (proteolytic pseudomonad causing rainbow trout skin lesions)
(10): 1511 (of bacteria associated with surfaces of hatching Pac. salmon eggs, re egg mortality)
(11): 1745 (diploid components of chromosomes; karyotypes; of dwarf & large white suckers & of longnose sucker)
(11): 1733 (acid phosphatase activity in *Clostridium botulinum* vegetative cells & spores)
B 177 (*Gonyaulax tamerensis* dinoflagellate re paralytic shellfish toxicity)
S 1559 (*Uronema* marine ciliate)
1589 (*Dinoasteromonas* flagellates re discoasters)
- Cytophaga* (see also Bacteria)
J 28(10): 1511 (associated with surfaces of hatching Pac. salmon eggs)
- Cytotaxonomy
S 1589 (*Dinoasteromonadacea* flagellates)
- D**
- 2,4-D (see Herbicides)
- Dab, mud (*Limanda yokohamae*)
T 236 (egg & larvae culture, development, growth, etc.)
- Dace, blacknose (*Rhinichthys atratulus*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Dace, longnose (*Rhinichthys cataractae*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
(10): 1645 (host to new trematode species, Alta.)
- Dace, northern redbelly (*Phoxinus (Chrosomus) eos*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Dahlberg, Michael Lee
J 28(8): 1107 (computer simulation of pollution minnow deaths)
- Dales, Rodney Phillips
J 28(10): 1487 (bioluminescence in pelagic polychaetes)
- Damalichthys vacca* (see Perch, pile)
- Dambers, Nikolajs
CHN 39 (extraction of isopropanol in fish protein concentrates)
- Dams
J 28(1): 35, 45 (differences in benthos & fish populations upstream & downstream of a dammed Ont. lake)
- Danielson, Jakob
A 228 (Greenlandic painter: book review)
- Daphnia* (see Cladocera)
- Darkness (see also Light, reactions to)
S 1557 (effect on crayfish ovarian maturation & subsequent egg-laying ability)
- Darter, Johnny (*Etheostoma nigrum*)
J 28(7): 1507 (effect of warm water of nuclear power plant discharge canal)
- Dasyatis centroura* (see Stingray, roughtail)
- Davenport, Douglas
T 221 (*G. B. Reed* groundfish cruise 70-3)
269 (*G. B. Reed* groundfish cruise 71-1)
- Davies, Ronald Wallace
J 28(4): 543 (freshwater Hirudinoidea key)
- Davis, John Christopher
J 28(10): 1609 (circulatory and ventilatory responses of trout)
- Davis, Robert Maurice
J 28(4): 505 (Atl. salmon histological comparisons)
- Day, Dwane
T 246 (Pac. trawl fishery & groundfish)

- DDD; DDE; DDT (*see* Insecticides)
- Deaminase (*see* Enzymes)
- Decapoda (*see also* subclassifications and common names)
 J 28(5): 705 (biological magnification & degradation of insecticides by fresh water)
 (6): 928 (in feed of fluffy & tidepool sculpins)
 T 266 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1527 (sterols of several types of)
- Decomposition (*see* Bacteria; Quality of fishery products)
- Defecation (*see* Feces)
- Defense mechanisms (*see* Disease)
- Deformity (*see* Abnormality)
- Dehydrogenases (*see* Enzymes)
- De Lange Boom, Bodo Rudolf
 T 253 (velocity and water temperature records, Strait of Georgia)
- Delolepis gigantea* (*see* Wrymouth, giant)
- Delphinapterus leucas* (*see* Whale, white)
- Denaturation
 S 1509 (accelerated, of rabbit & trout myosin in frozen solution)
 A 203 (free fatty acids role re frozen fish)
- Density; Specific gravity (*Note*: For general data re natural waters, *see* Limnology; Oceanography)
- Dentigryps* (parasitic copepods)
 J 28(3): 323 (species transferred to genus *Lepeophtheirus*)
- Deoxyribonuclease (*see* Enzymes)
- Deoxyribonucleic acid (DNA) (*see* Acids, nucleic; Nucleosides)
- Depth (for distribution of organisms, *see* Benthos; Distribution; for depths and effects of, *see* Hydrodynamics; Oceanography)
- Depuration
 B 177 (of E Canada shellfish re paralytic shellfish toxicity)
- Derksen, Arthur John
 J 28(8): 1133 (migrations of walleyes)
- Dermatitis, schistosome
 A 58(F) (cause, control, & treatment of human "swimmers' itch" & "clam diggers' itch")
- Derzhavin's biostatistical method of population analysis
 J 28(10): 1666 (examples)
 S 1582 (population dynamics)
- Desai, Indrajit Dayalji
 S 1480 (composition of a unicellular red alga)
- Deshmukh, Diwakar Shankarrao
 J 28(6): 843 (zinc retention in young rats fed increasing levels of high-zinc oysters)
- Desmosterol (*see* Sterols)
- Desulfovibrio desulfuricans* (*see* Bacteria)
- Detergents (*see* Nitrilotriacetate, trisodium; Phosphates; Pollution)
- Detoxification (*see* Depuration)
- Detritus (*see* Matter, particulate; Sediments)
- Development (*see also* Growth; Maturity; *also* names of organisms)
 J 28(1): 95 (tail length re respiration mode in big skate larvae)
 (3): 379 (dissolved oxygen requirements for embryonic & larval northern quahog)
 (5): 727 (salinity & temperature effects on embryonic petrale sole)
 (6): 883 (environmental effects on Pac. cod eggs, re geographical distribution)
 (7): 1051 (white seaperch, Tomales Bay, Calif.)
 (10): 1545 (salinity & temperature effects on Pac. herring early)
 T 236 (mud dab eggs & larvae)
 S 1486 (behaviour of female crayfish towards newly hatched young)
 1590 : 552 (of fishes re temperature)
- Diaphanosoma* (*see* Cladocera)
- Diaptomus* (*see also* Copepoda)
 J 28(2): 231, 245 (*D. minutus* common in many small NW Ont. lakes)
 (3): 311 (*D. articus* dominant in many W Canadian alpine & subalpine lakes & ponds)
- Diatoms (*see also* Phytoplankton)
 J 28(2): 194, 215, 265 (of several small NW Ont. lakes)
 (2): 265, 295 (of sediments in 16 small NW Ont. lakes as indicators of meteorological & limnological history of the lakes)

- T 202 (169 species from NW Miramichi R., N.B., including many new Atl. provinces records; also their use as indicators of heavy-metal water pollution)
- 248 (as culture feed for *Calanus pacificus* in grazing experiments)
- 267 (Frobisher Bay, Baffin Is., N.W.T.)
- S 1491 (ability to cleave phenylalanine aromatic ring)
- 1513 (as culture feed for *Calanus* in grazing experiments)
- Dickie, Lloyd Merlin
- S 1476 (marine science & technology)
- A 196 (review of book on fisheries population dynamics)
- 197 (metabolism and biological production in fish)
- Dickson, Ian William
- J 28(4): 587 (factors influencing rainbow trout metabolism)
- Dickson Lake, B.C.
- J 28(9): 1259 (segregation between adult cutthroat & Dolly Varden trouts)
- Diel habits (see also Behaviour; Light, reactions to)
- J 28(4): 573 (stream-migrating kokanee fry)
- (9): 1259 (Dolly Varden & cutthroat trouts in 3 B.C. lakes)
- T 248 (*Calanus pacificus* grazing habits re marine productivity)
- S 1513 (*Calanus* grazing habits re marine productivity)
- Dieldrin (see Insecticides)
- Diastothyris frontalis* (Brachiopoda)
- T 268 (in B.C. faunistic surveys since 1960)
- Diet (see Culture; Feed; Feedstuff; Hatcheries; Predation; Rations)
- Digenea (see Flukes)
- Digestion; Digestive tract (see also Bioenergetics; Feed; Metabolism; Rations)
- J 28(1): 110 (rate of sockeye salmon alevins in mountain whitefish stomach, & temperature effect on rate)
- (3): 335 (vs. survival of sedimentary bacteria after ingestion by tubificid oligochaetes)
- (10): 1635 (by young sockeye salmon re nature of diet)
- Dill, Peter Arnott
- J 28(9): 1319 (perception of light by young salmon)
- Dimethylamine (DMA) (see also Amines; Trimethylamine)
- J 28(1): 1 (formation vs. non-formation in stored frozen dark muscle of gadoid vs. non-gadoid Atl. coast fishes)
- Dimond, John Barnett
- J 28(12): 1877 (DDT in lotic ecosystem)
- Dinamoebidium* (see Dinoflagellates)
- Dingle, John Reginald
- J 28(8): 1125 (inosine phosphate breakdown in fishes)
- Dinoasteromonadaceae (see Dinoflagellates)
- Dinoasteromonas* (see Dinoflagellates)
- Dinoflagellates (see also Flagellates)
- J 28(2): 195 (Peridineae of several small NW Ont. lakes)
- B 177 (*Gonyaulax tamarens* re paralytic shellfish toxicity)
- T 267 (Frobisher Bay, Baffin Is., N.W.T.)
- S 1488 (*Actiniscus canadensis* (new species), *A. pentasterias arcticus* (new variety), & *Pseudo-actiniscus apentasterias* (new genus & species): marine relicts in Canadian arctic lakes)
- 1577 (*Dinamoebidium coloradense* & *Katodinium auratum* (2 new species) from Como Creek, Colorado)
- 1578 (*Dinamoebidium hyperboreum* (new species) from Ellesmere Is. coastal waters, N.W.T.)
- 1589 (taxonomy, cytotoxonomy & morphogenesis of new family Dinoasteromonadaceae; new genus *Dinoasteromonas*; new species *D. tribrachiatus*, *D. pentaradiatus*, *D. deflandrei*, *D. brouweri*; discoasters re morphology & taxonomy of fossil & recent Dinophyta)
- Dinophyceae (see also Dinoflagellates)
- S 1589 (fossil & contemporary, secreting discoasters)
- Diodon holocanthus* (see Balloonfish)
- hystrix* (see Porcupinefish)
- Diptera (see also Chironomidae; Insects, aquatic)
- J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
- (1): 73 (ecological energetics & natural history of *Hedriodiscus truquii* in thermal springs)
- (2): 257 (in zoobenthos of 15 small NW Ont. lakes)
- (5): 705 (biological magnification & degradation of insecticides by)
- (6): 849 (samplings from shallow stream beds)
- S 1532, 1533 (of a high Colorado mountain creek, including a new genus & species, *Cressoniella montana*)
- Discinisca lamellosa* (Brachiopoda)
- T 268 (in B.C. faunistic surveys since 1960)

Discoasters

- S 1589 (re morphology & taxonomy of fossil & contemporary Dinophyta)

Disease (see also Cytology; Histology; Parasites; Pathology; Tumours; Viruses)

- J 28(1): 112 (leukemic condition in cutthroat trout)
 (4): 517 (first records of vibriosis in Pac. salmon cultured in Canada; correction on J 28(8): 1219)
 (4): 533 (Columbia R. fish ladders influence on columnaris disease of fishes)
 (7): 1064 (infectious pancreatic necrosis virus in brook trout feces & organs; effect of stress on detecting masked viral & bacterial infections in fishes)
 (9): 1253 (*columnaris*, of rainbow trout & coho salmon; antibody production, immune responses, vaccination)
 (9): 1350 (infectious pancreatic necrosis virus found in brook trout in 2 Ont. hatcheries)
 (10): 1629 (first spontaneous furunculosis occurrence in a marine fish)
 (11): 1739 (rainbow trout & chinook salmon susceptibility to *columnaris*)
 (11): 1809 (new lymphocystis viral infection records in gobiid fishes & balloonfish, E Pac. coast)

CHN 40 (red crab resistance to gaffkemia lobster disease)

T 226 41, 42 (nature & control of gaffkemia in lobsters) (*Aeromonas liquefaciens* bacteria cause of epizootic fish mortalities in NW Miramichi R., N.B.; possibility of shiners as immune carriers)

245 (uncertain, possibly fungal, of mountain whitefish & rainbow trout, Kootenay L., B.C.)

246 (bibliography of N America Pac. coast trawled fishes)

S 1487 (from effects of nematode parasitization on fishes)

1567 (re Crustacea as enemies of fish)

A 58(F) (human dermatitis from fluke larvae)

180 (gaffkemia & its pathology in lobsters)

186 (infectious, of USSR fishes; immunity & control: book review)

Disinfection; Disinfectants

J 28(12): 1899 (of rainbow trout & coho salmon fry resultant stress from formalin treatment)

CHN 42 (of lobster tanks & pounds against gaffkemia disease bacteria)

A 58(F) (against swimmers' & clam-diggers' dermatitis itch)

203 (refrigerated seawater equipment for holding fish)

Dispersal (see also Dispersants; Distribution)

J 28(7): 1019 (role of social behaviour in introduced rainbow trout dispersal)

Dispersants

S 1476 (combating fuel oil spills)

A 223 (combating fuel oil spills)

Distribution (biological) (see also Age; Marking; Migration; Species, new records or range extensions; Tagging)

J 28(1): 49 (of populations of 2 salamander species, Marion L., B.C.)

(2): 245 (vertical, of zooplankton in 2 shallow small NW Ont. lakes)

(3): 311 (of planktonic Crustacea in 146 W Canadian alpine & subalpine lakes & ponds)

(3): 323 (*Lepeophtheirus nordmanni* & *L. hastatus* parasitic copepods world distribution)

(3): 369 (salmonid elemental composition re geographical origins see also T 200 below)

(3): 391 (of red-water ciliate *Mesodinium rubrum*)

(3): 417 (bathymetric, re Pac. ocean perch reproductive patterns)

(3): 427 (tubenout & prickleback species)

(3): 452 (world, of native or introduced brook trout)

(4): 465 (N American, re intraspecific variations of lake char)

(5): 663 (world, of rainbow trout)

(5): 749 (arctic grayling geographical origin)

(6): 883 (Pac. cod, re environmental effects on egg development)

(6): 911 (particulate carbon & nitrogen re primary production, Chesapeake Bay, Md.)

(9): 1259 (Dolly Varden & cutthroat trouts re feed in 3 B.C. lakes)

(10): 1403 (amphipacific, of some 25 polychaete species)

(10): 1663 (Pac. herring offshore, on basis of fur seal stomach contents; also of fur seals off B.C.)

(10): 1621 (northern rockfish)

B 177 (paralytic shellfish poison in E Canada shellfishes; geographical & anatomical)

CJG 18: 25 (seasonal, of NE Nfld. & Labrador herring)

T 200 (multiple discrimination analysis of data from J 28(3): 369 reference above)

213 (lateral & depth, of B.C. offshore herring)

221 (Pac. ocean perch as taken in B.C. groundfish surveys)

225 (Bay of Fundy benthos associated with sea scallop)

252 (herring larvae off S N.S. coast)

260 (depth, of Scotian Shelf groundfishes)

S 1470 (latitudinal & depth, in checklist of B.C. marine molluscs)

- 1529 (trace elements & chlorophyll *a* in L. Ontario)
 1532 (invertebrates in high mountain North Boulder Creek, Colorado)
 1580 (shallow-water marine benthos, Bideford R. estuary, P.E.I.)
 1590 : 558 (of various fishes re temperature)
 A 193 (world, of capelin)
 204 (Pac. salmon & steelhead trout in N Pac. Ocean)
 224 (world, of coregonid fishes & their parasites)
- Distribution (physical)
 T 262 (predicting excess temperature distribution in natural waters receiving hot discharge from steam-electric power plants)
 A 232 (radioactive isotopes in atmospheric & marine environment from various sources)
- DNA (deoxyribonucleic acid) (*see* Acids, nucleic; Nucleosides)
- Doctor, fish (*Gymnelis viridis*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Dodecaceria (cirratulid polychaetes)
 J 28(10): 1437 (list of 13 recognized species, plus a new species *D. berkeleyi*)
- Dogfish, black (*Centroscyllium fabricii*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Dogfish, Pacific (*see* Dogfish, spiny (Pacific))
- Dogfish, spiny (Atlantic) (*Squalus acanthias*)
 J 28(9): 1285 (methylmercury in, N.S. Banks)
 T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
- Dogfish, spiny (Pacific) (*Squalus acanthias*) (*S. suckleyi*) (dogfish shark)
 T 210, 221, 269 (catches during B.C. groundfish surveys)
 210 (size & sex composition, feed)
 213 (size, feed, etc., taken during offshore B.C. herring surveys)
 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
 246 (bibliography)
 S 1591 (pristane & other hydrocarbons in a commercial Canadian liver oil)
- Dogwinkle, Atlantic (*Thais (Purpura) lapillus*)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Dolly Varden (*Salvelinus malma*)
 J 28(9): 1259 (sympatry & allopatry with cutthroat trout re feed & habits in 3 B.C. lakes)
- Dolphin (*Coryphaena hippurus*)
 J 28(7): 947 (blood pathways effects on blood-pressure drop in gills)
 T 261 (bibliography for Gulf of St. Lawrence)
- Dolphin, Amazon River (*Inia geoffrensis*)
 S 1514 (wax esters, triglycerides & glyceryl ethers in jaw & blubber fats re echolocation)
- Dominy, Charles Leslie
 J 28(8): 1215 (blood changes in alewives through exercise)
- Donaldson, Edward Mossop
 S 1526 (feedback mechanism in eels)
 1535 (sexual behaviour of female guppy)
- Dorosoma cepedianum* (*see* Shad, gizzard)
- Drags (*see* Currents)
- Drift (*see* Currents)
- Drill, greater clam (*see* Clam drill, greater)
- Drill, oyster (*see* Oyster drill, Atlantic)
- Drilonereis falcata minor* (*see* Polychaeta)
- Drogues (*see* Currents)
- Drum, freshwater (*Aplodinotus grunniens*) (sheepshead)
 J 28(7): 1061 (practical drying equipment for fillets & steaks)
 S 1591 (pristane & other hydrocarbons in commercial oil)
 A 200 (mercury contamination, L. Winnipeg)
 201 (mercury contamination, Great Lakes)
- Drummond, George Ira
 A 226 (nucleoside cyclic phosphate diesterases)
 227 (nucleotide phosphomonoesterases)
- Drying (of fish)
 J 28(7): 1061 (practical apparatus for fillets & steaks)
- Dubé, James Gilles
 T 249 (methodology for identification of marine oils in hydrogenated edible oil products)
- Duck, black (*Anas rubripes*)
 T 272 (halogenated hydrocarbons detected in eggs)
- Duedall, Ivor Warren
 J 28(11): 1815 (dispenser for oxygen reagents)
 S 1473 (phenosafranin indicator for chlorinity titrations)
- Duffy, James Regis
 J 28(1): 59 (DDT in Atl. fishes & shellfishes)
 S 1552 (decrease in DDT residues in young salmon)
- Dugesia tigrina* (*see* Turbellaria)
- Dulse (*Rhodomenia palmata*)
 S 1457 (desmosterol & other sterols content)

Dyer, William John
J 28(6): 869 (octopine in postmortem muscle of sea scallop)

Dyes (*see also* Marking)

S 1539 (recommended as best means of tracing marine flushing re pollution)

Dynamics (*see also* Hydrodynamics)

A 184 (population, re exploitation of arctic ringed & harp seals)

196 (population, re fisheries biology: book review)

Dysart, Douglas Keen

J 28(8): 1181 (X-ray effects on trout embryos)

E

Eaton, Catherine Anne

J 28(4): 601 (investigation re commercial oil from sand lance)

S 1514 (lipids of Amazon R. dolphins)

Eaton, John Gates

J 28(12): 1841 (chloramine toxicity to amphipod and minnow)

Echinodermata (*see* Sea urchins; Starfish; Starfishes)

Echinoidea (*see* Sea urchins)

Echo sounding (*see* Echolocation; Sounding, echo)

Echolocation (*see also* Sounding, echo)

J 28(9): 1269 (integrated echo voltage re echo sounding for fish density)

(9): 1275 (integrated echo voltage re Puget Sound Pac. hake population estimates)

(9): 1293 (mathematical treatment of fish abundance variance estimates using fish echo integrator)

S 1515 (jaw & blubber fats composition re possible role in Amazon R. dolphin echolocation ability)

A 220 (possibilities for locating fish)

Ecology; Ecosystems (*see also* aspects of, e.g. Pollution)

J 28(1): 49 (bottom sediments, Marion L., B.C.)

(1): 73 (ecological energetics & natural history of a thermal spring dipteran herbivore)

(3): 391 (red-water ciliate *Mesodinium rubrum*)

(5): 705 (biological magnification & degradation of insecticides by freshwater invertebrates)

(7): 971 (of *Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)

(7): 1057 (effects from thermal discharge from nuclear power plants)

(10): 1545 (implications of temperature & salinity effects on Pac. herring early development)

(10): 1511 (of bacterial flora associated with surface of hatching Pac. salmon eggs, re egg mortality)

(11): 1783 (⁶⁵Zn vs. Zn distribution in an experimental marine ecosystem)

(12): 1877 (DDT accumulation & persistence in a lotic)

T 252 (herring larvae & macrozooplankton biomass off S.N.S. coast)

262 (effects from thermal discharge from steam-electric power plants)

S 1532, 1533 (autecology re invertebrates in high mountain North Boulder Creek, Colorado)

1547 (brown trout interactions with brook trout in a Nfld. stream)

1587 (paleoecology & biostratigraphy, Santa Barbara Is., Calif.)

1589 (habitat temperature re body temperature of fishes: review)

A 189 (freshwater fish productivity re ecosystem)

230 (re human food from a northern environment)

232 (radioactivity in the marine environment: extensive summary of book)

233 (re pollution problems)

Economics (*see also* Fisheries; Management)

B 175 (economic study of Maritime Provinces oyster fishery)

Ecosystems (*see* Ecology)

Edmunds, Philip Howell

J 28(7): 1053 (tetrazolium oxidase in N Atl. tuna)

EDTA (Ethylenediaminetetraacetic acid) (*see* Chelating agents)

Eel, American (*Anguilla rostrata*)

J 28(7): 1507 (effect of warm water of nuclear power plant discharge canal)

(9): 1285 (methylmercury in N.B.)

T 261 (bibliography for Gulf of St. Lawrence)

S 1526 (physiological evidence for pituitary-adrenocortical feedback mechanism in)

Eel, deepsea spiny (*Macdonaldia challengerii*)

J 28(9): 1349 (fifth known specimen extends range to Oregon coast)

Eel, spiny (*Notacanthus nasus*) (largescale tapirfish)

T 261 (bibliography for Gulf of St. Lawrence)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Eelblenny, slender (*Lumpenus fabricii*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelblenny, stout (*Lumpenus medius*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelgrass (*Zostera marina*)
A 109(F) (control on oyster beds)
- Eelpout, arctic (*Lycodes reticulatus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelpout, blackbelly (*Lycodopsis pacifica*)
T 221 (taken in B.C. groundfish surveys)
257 (taken in B.C. trawl fishery, 1970)
- Eelpout, Laval's (see Eelpout, Newfoundland)
- Eelpout, Newfoundland (*Lycodes lavalaei*) (Laval's eelpout)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelpout, pale (*Lycodes pallidus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelpout, polar (*Lycodes turneri*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelpout, Vahl's (*Lycodes vahliei*)
T 261 (bibliography for Gulf of St. Lawrence)
- Eelpouts (Atlantic) (see also names of species)
J 28(9): 1285 (methylmercury in *Lycodes atlanticus* from N.S. Banks)
T 261 (bibliography for *L. atlanticus*, *L. esmarki* & *L. seminudus* in Gulf of St. Lawrence)
- Eggs, Ova (see also Culture; Development; Fecundity; Hatcheries; Ovary; Spawning)
J 28(1): 59 (DDT residues in N.B. lobster)
(4): 513 (size, re age of successive generations of Skeena R. sockeye salmon)
(5): 647 (results for 3 generations from pink salmon eggs transplanted to Qualicum R., B.C.)
(5): 727 (salinity & temperature effects on petrale sole embryonic development)
(5): 745; (12): 1915 (cryo-preserved sperm for fertilizing salmonid)
(6): 883 (salinity, temperature, & dissolved oxygen effects on development, re Pac. cod geographical distribution)
(8): 1119 (low oxygen concentration effects on fathead minnow females re egg hatching)
(8): 1181 (growth & fecundity of rainbow trout after eyed eggs exposure to X-rays)
(9): 1235 (vertebral count re egg size of medaka)
(10): 1511 (details of bacterial flora associated with surface of stream-incubating pink & chum salmon, re egg mortality)
- (12): 1853 (proteins classification in coho salmon)
T 231 (data, arctic char in a small arctic lake)
236 (mud dab: culture & development)
246 (bibliography of N America Pac. coast trawled fishes)
272 (halogenated hydrocarbons detected in aquatic birds)
S 1468 (re spawning behaviour of crayfish)
1521 (proteins of soluble fraction of Pac. salmon species)
1557 (temperature & photoperiod effects on crayfish egg-laying)
A 190 (ICNAF report on American plaice eggs & larvae numbers in Davis & Denmark Straits)
207 (survey of distribution & abundance, N.B. & N.S. herring)
- Eglinton, Geoffrey
S 1528 (geological fate of chlorophyll)
- Egtved virus (see Viruses)
- Ehrenberg, John Edward
J 28(9): 1293 (abundance estimate variance)
- Eisler, Ronald
J 28(9): 1225 (cadmium poisoning in *Fundulus*)
- Ekman grab (see Grab)
- Ekman transport (of ocean waters) (see Transport, mass)
- Electric power plants (see Nuclear power plant; Thermal power plant)
- Electricity; Electrical effects (see also Electronics)
J 28(4): 565 (Atl. salmon olfactory epithelium electrical responses)
(10): 1595 (pulses during *Veleva* hydroid behaviour)
- Electronics (see also Apparatus; Echolocation)
S 1516 (bridge & amplifier for monitoring d-c level)
1517 (unijunction transistor for giving frequency divider immunity to input jitter)
- Electrophoresis; Electropherograms (Note: This widely used procedure is no longer indexed separately; see materials to which it is applied, e.g. Proteins)
- Elgmork Kåre
S 1532 (distribution of invertebrates)
- Ellender, Rudolph Dennis
J 28(5): 788 (analysis of ammonium-nitrogen in artificial seawater aquaria)
- Ellerslie, P.E.I.
J 28(1): 59 (DDT residues in smelt & shellfishes)
- Ellesmere Island, N.W.T.
S 1578 (new marine dinoflagellate species, & associated phytoplankton)

- Ellis, Derek Victor
J 28(10): 1433 (relation between tube-building and feeding in Polychaeta) 217
- Elson, Paul Frederick
S 1552 (decrease in DDT residues in young salmon) 262
- Embassichthys bathybius* (see Sole, deepsea) S 1590
- Embryos (see also Development; Eggs; also names of adult organisms) A 183
- J 28(1): 100 (device for rapid removal of fish embryos from eggs) 201
- Emergence (see Development; Eggs) 230
- Emery, Kenneth Orris
S 1511 (European flints on N American coast) 232
- Enchelyopus cimbrius* (see Rockling, fourbeard)
- Endocrinology (see Hormones; Steroids)
- Energetics (see Bioenergetics)
- Energy, radiant (see Irradiation; Light, reactions to; Photosynthesis; Radiation; Radioactivity; X-rays)
- Englar, John Randall
S 1530 (polysaccharides of red alga)
- Engraulis mordax* (see Anchovy, northern)
- Enhydra lutris* (see Sea otter)
- Enolase (see Enzymes)
- Ensis directus* (see Clam, razor (Atlantic))
- Enterobacteriaceae (see also Bacteria)
- J 28(10): 1511 (associated with surfaces of hatching Pac. salmon eggs)
- Entosphenus tridentatus* (see Lamprey, Pacific)
- Enumeration (see Census; Counting)
- Environment (see also Behaviour; Ecology; Pollution, also factors affecting environment)
- J 28(5): 778 (wave exposure re *Laminaria* seaweed taxonomy)
- (6): 883 (effects on Pac. cod eggs re geographical distribution)
- (7): 1057 (effects from thermal discharge from nuclear power plants)
- T 200 (possibilities of X-ray fluorescence spectrophotometry of elemental composition of organisms for assessing environmental aspects)
- Enzymes
J 28(1): 15 (American lobster esterase isozymes polymorphisms)
- (4): 613 (channel catfish plasma esterases enzymatic properties; esterase content of other fish plasmas)
- (6): 869 (octopine dehydrogenase in sea scallop muscle)
- (6): 879 (lobster enolase isolation & comparison with other enolases re phylogeny)
- (7): 1005 (multiple malate dehydrogenase isozymes in walleye skeletal muscle, re genetics)
- (7): 1015 (lysosomal triglyceride lipase from rainbow trout lateral line tissue)
- (7): 1053 (genic polymorphism of bluefin tuna blood & tissues tetrazolium oxidase)
- (8): 1125 (inosine 5'-monophosphohydrolase effects in iced Atl. fishes fillets)
- (9): 1325 (postmortem changes in glycogen phosphorylase activity of sucker & pike muscle)
- (10): 1603 (ribonucleotide reductase in sockeye salmon immature testes)
- (11): 1745 (serum esterases, lactate dehydrogenases & transferrins of large & dwarf white suckers & longnose sucker)
- (11): 1817 (acid phosphatase activity in *Clostridium botulinum* cells & spores)
- S 1458 (glycosyl transferase from rainbow trout liver re liver glycogen structure)
- 1462 (pancreatic lipase reactivity as influenced by fatty acid structure)
- 1471 (colorimetric assay for pancreatic lipase based on acetaldehyde liberated from vinyl oleate substrate)
- 1508 (purification & properties of chinook salmon testes acid deoxyribonuclease)
- 1523 (lingcod muscle purine & pyrimidine nucleoside phosphorylases)
- 1524 (lingcod muscle guanine deaminase mechanism & specificity)
- 1525 (trout liver pyrimidine deoxynucleoside phosphorylase & deoxyribosyltransferase)
- 1545 (electrophoretic analysis of esterase systems in Atl. salmon \times brown trout hybrids)
- 1560 (deoxyribonucleic acid polymerase from immature sockeye salmon testes)

- A 226 (nucleoside cyclic phosphate diesterases)
227 (nucleotide phosphomonoesterases)
- Eopsetta jordani* (see Sole, petrale)
- Ephemeroptera (see Insects, aquatic; Mayflies)
- Epifauna (see also Benthos)
J 28(8): 1205 (two simple durable collectors for)
- Epizootic (see Disease)
- Eptatretus stoutii* (see Hagfish, Pacific)
- Equipment (see Apparatus)
- Erie, Lake (see also Great Lakes)
J 28(5): 786 (heavy-metal concentrations in dressed northern pike, rainbow smelt, & yellow perch)
(8): 1133 (adult & juvenile walleye migrations between L. Huron &)
S 1543 (Oligochaeta, Sphaeriidae & Chironomidae)
- Erignathus barbatus* (see Seal, bearded)
- Erimacrus isenbeckii* (see Crabs)
- Errata (see Corrections)
- Erythropoiesis
J 28(1): 47 (re function of hemosiderin bodies in fish spleen, liver, & kidney tissues)
- Escapement (see Spawning)
- Esox americanus vermiculatus* (see Pickerel, grass)
lucius (see Pike, northern)
masquinongy (see Muskellunge)
niger (see Pickerel, chain)
- Esterases (see Enzymes)
- Esters (see also Acids, fatty; Enzymes; Oils and fats; Waxes)
S 1549 (tropylium ion origin in arylboronic acid glycol esters mass spectra)
- Estrogens (see Hormones)
- Estuary (see also names of rivers and bays)
J 28(12): 1921 (herring predation on young chinook salmon in a B.C.)
S 1539 (capacity of marine to accept pollutants; use of dyes to follow flushing action)
- Etheostoma nigrum* (see Darter, johnny)
- Ethers
S 1514 (diacyl glyceryl ethers composition of Amazon R. dolphin jaw & blubber fat)
1564 (diacyl glyceryl ethers composition of sea anemone *Metridium dianthus* lipids)
- Ethylenediaminetetraacetic acid (EDTA) (see Chelating agents)
- Eualis berkeleyorum* (caridean shrimp)
J 28(10): 1615 (new species, off B.C. coast; also isopod parasite)
- Eubothrium crassum* (see Cestoda; Indicator species)
- Eucalia inconstans* (see Stickleback, brook)
- Eudactylinidae (see Copepoda)
- Euglenophyta
J 28(2): 192 (of several small NW Ont. lakes)
- Eulachon (*Thaleichthys pacificus*)
T 210, 221 (taken during B.C. groundfish surveys)
257 (taken in 1970 B.C. trawl fishery)
- Eumesogrammus praecisus* (see Snakeblenny, fourline)
- Eumicrotremus spinosus* (see Lumpsucker, Atlantic spiny)
- Euphausiids
T 252 (biomass off southern N.S. coast)
266 (Frobisher Bay, Baffin Is., N.W.T.)
S 1485 (importance & general implications of organic matter in aquatic environments, re feed for)
1527 (*Nectiphanes norvegica* sterols)
A 211 (re feed availability to different trophic levels in marine feed chain)
- Euphoria longana*
S 1481 (seed oil fatty acids)
- Euthynnus pelanus* (see Tuna, skipjack)
- Eutrophication (see also Limnology; Oceanography; Pollution; Sediments; also types of pollutants)
J 28(2): entire issue (re 463 lakes in FRB Experimental Lakes Area, NW Ont.)
(11): 1683 (re macroinvertebrate species diversification in L. Ontario bays)
(11): 1763 (of small NW Ont. lake upon addition of phosphate and nitrate)
(11): 1811 (tolerance of fishes to alkalinity in Nebraska lakes & ponds)
T 247 (Bedford Basin, N.S., studies)
S 1482 (Bedford Basin, N.S., studies)
A 201 (in Great Lakes re pollutants effects on fishes as food)
216 (phosphates, nitrates, & carbon re the Great Lakes (polemical))
- Evelyn, Trevor Patrick Todd
J 28(4): 517 (*Vibrio anguillarum*: taxonomic status & first Canadian records; correction on J 28(8): 1219)
(10): 1629 (sablefish furunculosis)
S 1497, 1498 (metabolism of putrescine)
1503 (small particles in seawater)

Evolution (*see also* Genera; Genes; Phylogeny; Speciation; Zoogeography)

J 28(7): 987 (*Salmo* species & subspecies of western N America)

(10): 1595 (*Veleva* behaviour re chondrophore)

Excretion (*see* Feces; Metabolism)

Exercise (*see* Activity; Stress)

Exoskeleton (*see* Carapace)

Exploitation (*see also* Fisheries; Management; Populations)

J 28(6): 821 (Skeena R. sockeye & pink salmon, re gillnet selectivity)

(12): 1873 (bowhead whale Canadian population recovery after previous exploitation)

A 184 (arctic ringed & harp seals)

192 (Atl. salmon by foreign fisheries)

202 (summary of A 192 above)

Exploration (*see* Surveys)

Exponentials

A 189 (table of, from e^{-3} to e^3)

Eye (*see* Light, reactions to; Vision)

F

Fallfish (*Semotilus corporalis*)

J 28(9): 1285 (methylmercury in N.B.)

Family

J 28(10): 1407 (new polychaete: Fauveliopsidae, with key to genera)

Farley, John

A 58(F) ("swimmers' itch")

Farming, aquatic (*see* Culture)

Fatigue (*see* Stress)

Fats (*see* Acids, fatty; Glycerides; Lipids; Oils and fats)

Fatty acids (*see* Acids, fatty)

Fauna, aquatic (*see also* Benthos; Biomass; Fauna, bottom; zooplankton; *also* types of)

J 28(9): 1322 (quantitative sampler for those on aquatic plants)

Fauna, bottom (*see also* Benthos; Fauna, aquatic; Sampling; Sediments; *also* types of, e.g. Insects, aquatic)

T 225 (Bay of Fundy)

S 1543 (Georgian Bay, L. Ontario, & L. Erie aquatic insects)

Fauveliopsidae (polychaetous annelids)

J 28(10): 1407 (new family)

Feces

J 28(3): 335 (surviving sedimentary bacteria those of tubificid oligochaete worms)

(7): 1064 (vs. organs re presence of pancreatic necrosis virus in brook trout)

(9): 1327 (role of copepods, in fecal sedimentation of particulate fuel oil from marine spills)

Fecundity (*see also* Eggs; Reproduction; Spawning)

J 28(3): 456 (yellowtail flounder, from Grand Bank, Nfld.)

(5): 764 (Atl. salmon from 2 Maine rivers)

(7): 1029 (of right vs. left Atl. capelin ovary)

(7): 1051 (white seaperch, Tomales Bay, Calif.)

(8): 1119 (effects of low oxygen concentration on fathead minnow)

(8): 1153 (winter flounder, Long Pond, Nfld.)

(8): 1181 (rainbow trout, after eyed-embryo exposure to X-rays)

(9): 1309 (white whale)

T 231 (arctic char in a small arctic lake)

246 (bibliography of N America Pac. coast trawled fishes)

A 190 (Greenland turbot)

Feed; Feed chain; Feeding habits; Stomach contents (*see also* Culture; Feedstuff; Grazing; Metabolism; Predation; Productivity; Rations; Starvation)

J 28(3): 335 (tubificid oligochaete worms on sediment bacteria)

(3): 343 (intake & conversion factors re pre-smolt coho salmon growth)

(3): 409 (satiation time, appetite & maximum feed intake of sockeye salmon)

(3): 449 (bluegill sunfish protein consumption & nitrogen excretion)

(5): 776 (*Pontoporeia affinis* amphipod as fish feed source, Cayuga L., N.Y.)

(6): 861 (level effect on sockeye salmon scale circulus formation, also on fish length & weight)

(6): 928 (of 2 cohabiting tidepool sculpin species, re difference in amount of copepods eaten)

(8): 1153 (details of Nfld. winter flounder stomach contents)

(8): 1185 (bacterial counts of commercial fish diets)

(8): 1199 (Atl. salmon on scaled lancetfish)

(9): 1259 (of sympatric vs. allopatric Dolly Varden & cutthroat trouts in 3 B.C. lakes)

- (10): 1433 (re tube-building in a terebellid polychaete)
- (10): 1663 (of fur seal, as clue to Pac. herring offshore distribution)
- (12): 1841 (experience effects on rainbow trout)
- B 177 (of E Canada shellfishes re paralytic shellfish toxin retention from *Gonyaulax tamarensis*)
- T 160 (of 4 *Lepidion* morid fish species)
- 165(F) (*Gammarus lacustris* re rainbow trout farming)
- 210 (of dogfish & hake off Juan de Fuca Strait)
- 213 (of chinook, pink, & chum salmon, & dogfish, offshore B.C.)
- 231 (of arctic char in a small arctic lake)
- 236 (of larval mud dab during culturing)
- 248 (*Calanus pacificus* copepod feeding rates, etc., re marine productivity)
- S 1485 (aquatic organic matter as filter-feeding copepods natural feed)
- 1513 (*Calanus* copepod rations, re marine productivity)
- 1520 (cestode from stomach as clue to feed of giant squid)
- 1547 (re sympatry of brook & brown trout in a Nfld. stream)
- 1551 (of postlarval *Macoma balthica* clam)
- 1559 (*Uronema* ciliate ingestion of bacteria)
- 1575 (feeding rate re body weight of Cetacea)
- A 184 (harp & ringed seal)
- 188 (cycle in Saanich Inlet, B.C.)
- 193 (capelin)
- 211 (plankton & pink & chum salmon, re trophic levels in feed chain)
- 212 (energy requirements for fish when feeding: review)
- 232 (radioactivity re marine feed ecosystems)
- 233 (pollution re aquatic feed ecosystems)
- Feedback (see Physiology)
- Feeding habits (see Feed)
- Feedstuff (animal rations) (see also Feed; Fishmeal; Rations)
- T 216, 257 (landings for, from B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 246 (bibliography of N America Pac. coast trawled fish for)
- A 231 (utilization from N.W.T. fisheries for dogs)
- Fenderson, Owen Charles
- J 28(4): 505 (Atl. salmon histological comparisons)
- Ferguson, Robert Gilmour
- J 28(8): 1133 (migrations of walleyes)
- Fernando, Constantine Herbert
- J 28(3): 365 (simple corer vs. Ekman grab)
- Fertilization (see Eggs; Reproduction; Spawning; Sperm)
- Fibroma (see Tumours)
- Fields, William Gordon
- J 28(10): 1595 (studies on evolution of Chondrophora)
- (11): 1796 (unusual type of Pac. gonatid squid)
- Figueira, Armando Jorge Gomes
- B 176 (Canadian marine zooplankton)
- Fillets, fish (see also Quality of fishery products)
- J 28(3): 305 (bacterial trimethylamine production in stored chilled haddock)
- (7): 1061 (practical small-scale dryer for)
- (8): 1125 (inosine 5'-phosphate degradation effects on iced)
- A 203 (precooked in batter)
- Finlayson, B. J.
- J 28(9): 1285 (methylmercury in fish)
- Fins; Fin rays
- J 28(4): 553 (ray counts of spring vs. autumn spawning SW Nfld. herring)
- (7): 1009 (ray counts re S Gulf of St. Lawrence seasonal herring stocks discreteness)
- (10): 1672 (abnormal coloration of petrale sole)
- T 192 (rays counts, Greenland halibut)
- Fiords (see Inlets)
- Firmness (of flesh) (see also Quality of fishery products)
- T 220, 242 (sockeye salmon canned after storage of fish at sea in ice & refrigerated sea water)
- Fish farming (see Culture)
- Fish flour (see Fish protein concentrate)
- Fish ladders (see Fishways)
- Fish meal (see Fishmeal; Fish protein concentrate)
- Fish oils (see Acids, fatty; Lipids; Oils and fats)
- Fish protein concentrate (fish flour; FPC)
- CHN 39 (extraction & colorimetric determination of isopropanol residues in)
- A 198 (research & industrial progress, N.S.)
- Fisheries (see also Angling; Catches; Management; Stock; Yield; also names of commercial fishes and shellfishes; also names of International Fisheries Commissions)
- J 28(3): 351 (relative utilization rates of Miramichi R., N.B., Atl. salmon by local angling vs. maritime commercial fisheries)
- (3): 417 (Pac. ocean perch off Oregon, Washington & B.C., 1956-65)
- (3): 485 (response of brook trout populations to a fishery)
- (6): 821 (gillnet selectivity of pink & sockeye salmon, Skeena R., B.C.)
- (7): 1009 (discreteness of populations in Gulf of St. Lawrence spring & autumn herring)

- (8): 1211 (advantages & limitations of mathematical models for catch & effort)
- (12): 1873 (bowhead whale Canadian population recovery after previous exploitation)
- B 175 (economic study of Maritime Provinces oyster fishery)
- 177 (control, re paralytic shellfish toxicity in E Canada)
- 178 (raft culture of Pac. oyster in B.C.)
- CJG 18: 1 (recent developments in Nfld. herring purse-seining)
- T 216 (summary of B.C. & U.S. Pac. coast commercial trawling, 1969)
- 246 (bibliography of N American Pac. coast trawl fishery & groundfish)
- 256 (Georges Bank scallop fishery study)
- 259 (rock sole landings from Cape Scott Bank, B.C., 1959-69)
- MSP 13(F) (summary of FRB investigations of Canadian Arctic)
- S 1473 (portable refrigerated unit for holding iced fish in remote freshwater fisheries)
- 1540 (Atl. cod in ICNAF Subareas 2 & 3)
- 1541 (American plaice in ICNAF Subarea 3)
- 1546 (NW Atl. squids)
- A 181, 182 (ICNAF summaries of 1969 Canadian catches & research)
- 183 (re oceanography & ocean resources management)
- 184 (Canadian arctic harp & ringed seals)
- 185 (capelin as latent resource for Nfld.)
- 192, 202, 205 (Atl. salmon by countries, 1961-67; also effects of foreign Atl. salmon fisheries on Canadian fishery)
- 193 (capelin)
- 194 (Nfld.)
- 201 (Great Lakes: changes in production 1968 vs. 1920)
- 207, 219 (recent commercial & research events in Canadian Atl. herring)
- 208 (Bay of Fundy herring & N.B. "sardine" herring)
- 218 (research, very general synopsis)
- 225 (resume of S 1473 above)
- 231 (summary of FRB investigations of Canadian Arctic)
- Fisheries, foreign (*see also* names of countries)
- T 246 (bibliography of trawling, off N America Pac. coast)
- A 192, 202, 205 (Atl. salmon, & effects on Canadian fishery)
- 193 (Greenland, Iceland, Norway, USSR, for capelin)
- 194 (off Labrador)
- Fisheries Research Board of Canada (*see also* Publications and reports, Fisheries Research Board of Canada)
- J 28(2): entire issue (Board's Experimental Lakes Area studies of numerous small NW Ont. lakes)
- AR 1970 (Annual Report: Board purpose; research highlights; management activities; Board members; Executive Committee members; officers; establishments & their directors; Board Act (in English & French))
- R 1969/1970 (Biennial review: organization; review of investigations by establishments, with lists of professional staffs; Board members; list of 1967 & 1968 Board publications & reports)
- MSP 13(F) (history & nature of Canadian arctic investigations through its Arctic Biological Station)
- A 231 (*see* MSP 13(F) above)
- Fishery, sport (*see* Angling, *also* names of species, e.g., Salmon; Trout)
- Fishery products; Fishery by-products (*see also* Freshwater fish products; *also* types of processing and products; *also* names of organisms; *also* Quality of fishery products)
- A 215 (fishery by-products technology: book review)
- 203 (lessening pollution by wastewaters from)
- Fishes, freshwater (*see also* Angling; Fisheries; Freshwater fish products; *also* names of species and bodies of fresh water)
- J 28(1): 65 (L. Superior lake trout before 1950, re later lamprey invasion)
- (2): entire issue (FRB program & results in its NW Ont. Experimental Lakes Area)
- (3): 452 (brook trout world distribution)
- (3): 458 (brook trout populations response to a fishery)
- (5): 663 (rainbow trout world distribution)
- (5): 783 (effect of washing on keeping quality)
- (5): 786 (heavy-metal contamination of Canadian)
- (7): 1061 (practical small-scale commercial fillet & steak dryer)
- (11): 1811 (alkali tolerance of 14 species in Nebraska waters)
- MSP 13(F) (summary of actual & potential Canadian Arctic fisheries)
- S 1473 (portable refrigerated unit for holding iced fish in remote fishing areas)
- A 186 (infectious diseases of USSR, immunity & control: book review)
- 189 (assessment methods for production) review)
- 197 (metabolism & biological production)
- 200, 201 (mercury contamination in various species by localities)

Abbreviations: J — *Journal*. B — *Bulletin*. AR — *Annual Report*. R — *Review, Circular Series*: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — *Technical Reports*. MSP — *Miscellaneous Special Publications*. S — *Studies*. A — *Interpretive Articles*.

- 201 (environmental effects on Great Lakes, as affecting their fishes use as human food)
- 225 (resume of S 1473 above)
- Fishes, lists of
- T 199 (taken by otter trawl, longline, & night-light during FRB A. T. Cameron otter-trawl survey off U.S. Atl. coast from Delaware to Florida, Feb. 1969; over 100 species; not individually indexed)
- 246 (bibliography of N America Pac. coast marine, especially trawled fishes)
- 261 (bibliography for Gulf of St. Lawrence fishes)
- Fishing, exploratory (see Surveys)
- Fishing effort (see Catches)
- Fishmeal (see also Crabmeal; Fish protein concentrate; Shrimpmeal)
- T 216, 257 (landings for, from B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- A 203 (protein recovery from wastewater, to reduce pollution)
- Fishways; Fish ladders
- J 28(4): 533 (influence on *columnaris* disease incidence, Columbia R.)
- (8): 1215 (changes in blood lactic acid of alewives passing through a pool & weir)
- Flabelligeridae (see Fauveliopsidae)
- Flagellates (see also Dinoflagellates)
- T 267 (Frobisher Bay, Baffin Is., N.W.T.)
- S 1589 (morphogenesis & taxonomy of fossil & contemporary Dinophyta: reclassification of *Discoasteromonas*)
- Flannagan, John Fullan
- T 258 (tolerance tests on aquatic animals)
- Flatfishes (see also Groundfish; Trawling; also names of species)
- J 28(10): 1672 (ambicoloration of a petrale sole)
- T 246 (bibliography of N America Pac. coast)
- Flatworms (see Cestoda; Trematoda; Turbellaria)
- Flavobacterium* (see Bacteria)
- Flavour (see also Quality of fishery products)
- A 203 (nature of fresh vs. undesirable, in fishery products)
- Flemer, David Andrew
- J 28(6): 911 (C:N relations in Chesapeake Bay)
- Fleming, Allister Melville
- A 194 (Nfld. fisheries)
- Flesh (see also Fillets; Muscle; Protein; Quality of fishery products)
- J 28(4): 509 (colour of brook trout more attractive after feeding shrimp waste)
- T 220, 242 (texture of canned sockeye salmon after storing fish at sea in ice or refrigerated sea water)
- 203 (colour enhancement, flavour, texture, etc. re fish processing)
- Fletcher, Garth Leonardo
- J 28(5): 793 (accumulation of phosphorus by marine invertebrates & seaweed)
- T 255 (phosphorus toxicities to seawater-main-tained fish)
- Flints
- S 1511 (origin of European on Canadian & U.S. Atl. coast)
- Flocculating agents
- S 1531 (polyethylenimine interaction with casein, re pollution)
- Flora, aquatic (see also Algae; Benthos; Biomass; Eelgrass; Productivity, primary; Seaweeds; also names and types of)
- J 28(2): 144, 215 (FRB Experimental Lakes Area, NW Ont.)
- (5): 769 (assay method for ^{14}C -labelled benthos)
- (9): 1322 (quantitative sampler for macrofauna on)
- (12): 1877 (DDT accumulation & persistence in)
- S 1475 (confusion between C_{18} & C_{20} fatty acids in seed lipids analyses)
- 1553 (mining effluent effects on submerged & riverside vascular plants, NW Miramichi R., N.B.)
- Flora, terrestrial
- J 28(4): 144 (forest cover of FRB Experimental Lakes Area, NW Ontario)
- S 1475, 1481 (fatty acids of seed oils of *Symphytum officinale* & *Euphoria longana*)
- 1553 (mining effluent effects on vascular plants along banks of NW Miramichi R., N.B.)
- Flounder, arrowtooth (*Atheresthes stomias*) (Pacific turbot)
- T 210, 221, 269 (catches during B.C. groundfish surveys)
- 246 (bibliography)
- 257 (taken in 1970 B.C. trawl fishery)
- Flounder, smooth (*Liopsetta putnami*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Flounder, starry (*Platichthys stellatus*)
- J 28(9): 1241 (comparison of skin tumors in 3 flatfish species)
- T 216, 257 (taken in 1969 & 1970 B.C. & U.S. Pac. coast commercial trawling)
- 246 (bibliography)

Flounder, winter (*Pseudopleuronectes americanus*)

- J 28(1): 59 (DDT residues in N.B.)
 (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
 (8): 1125 (purines changes in iced fillets)
 (8): 1153 (distribution, movements, age, growth, & feed details, Long Pond, Nfld.)
 (9): 1285 (methylmercury in Bay of Fundy & N.S. banks)
 (11): 1727 (surges into intertidal zones)
 (12): 1907 (factors affecting respiration rates) (associated with Bay of Fundy scallop beds)
 T 225 (standing crop, availability, lengths, weights) etc. from Scotian Shelf surveys, 1958-68, (bibliography for Gulf of St. Lawrence)
 S 1569 (determination of residual fuel oil contamination in skin, flesh, & gut)
 A 200 (mercury contamination)

Flounder, witch (*Glyptocephalus cynoglossus*) (gray sole)

- J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 (9): 1285 (methylmercury in Bay of Fundy & N.S. banks)
 T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
 A 181, 182 (ICNAF 1969 Canadian research summaries)
 194 (Nfld. fishery)

Flounder, yellowtail (*Limanda ferruginea*)

- J 28(3): 456 (fecundity, Grand Bank; Nfld.)
 (7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 (9): 1285 (methylmercury in, N.S. banks)
 T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
 A 181, 182 (ICNAF Canadian 1969 research summaries)
 194 (Nfld. fishery)

Flounders (lefteye) (Bothidae)

- T 246 (bibliography of N America Pac. coast)

Flounders (righteye) (Pleuronectidae)

- T 246 (bibliography of N America Pac. coast)
 A 200 (mercury contamination, B.C.)

Flour, fish (see Fish protein concentrate)

Flow (see Currents; Tides)

Fluid mechanics (see Hydrodynamics)

Flukes (Trematoda)

- J 28(1): 31 (*Tristoma coccinium* & *T. integrum* in N Atl. swordfish, also their possible use as indicator species)
 (5): 767 (*Labrifer balli*, new species, from pink seaperch)
 (6): 903 (habitat segregation of *Aporocotyle macfarlanei* & *Psettium sebastodorum* in blood system of N Pac. rockfishes, also infection incidence re those fishes habitat)
 (10): 1385 (various Polychaeta as intermediate hosts of)
 T 160 (3 species parasitic in *Lepidion eques*)
 S 1483 (morphometric variation in *Lecithophyllum botryophorum* in Atlantic argentine)
 A 58(F) (Cercariae parasitic larvae causing human "swimmers' itch" dermatitis)
 224 (parasitic to N American, USSR & European coregonid fishes)

Fluorescence (see X-rays)

Fluorine derivatives

- J 28(7): 1055 (soil or mud fluoride determination by a non-fusion distillation method)
 T 233 (fluoride content of bottom deposits re pollution, Long Bay, Nfld.)
 255 (fluosilicic acid toxicity tests on brook trout)
 S 1505 (direct potentiometric determination of fluoride in sea water)

Flushing (see Currents; Oceanography; Pollution; Tides)

Food (for man) (see also next heading)

- A 201 (environmental factors affecting Great Lakes fishes as)
 230 (ecosystems, pollution, etc., re sources from a northern environment)

Food; Food chain (of other than for man) (see Bioenergetics; Culture; Feed; Feedstuff; Production, primary; Production, secondary)

Foraminifera

- S 1587 (fossil, re Pleistocene paleoecology of Santa Barbara Is., Calif.)

Ford, Peter

- J 28(1): 95 (tail growth rate in *Raja binoculata*)

Forecast

- J 28(6): 801, 809, 815 (mathematical, for fish growth efficiency in nature)

Formaldehyde: Formalin

- J 28(12): 1899 (stresses in young rainbow trout & coho salmon upon disinfection by)

- Forrester, Clifton Roger
 J 28(5): 727 (salinity & temperature effects on petrale sole)
 (6): 883 (environment of Pac. cod eggs)
 (10): 1672 (ambicoloration in petrale sole)
 T 216 (summary report B.C. trawl fishery 1969)
 236 (eggs & larvae of *Limanda yokohamae*)
 246 (Pac. trawl fishery & groundfish)
- Fossils
 J 28(2): 265 (diatoms in sediments of 16 small NW Ont. lakes as indicators of limnological history of lakes)
 S 1587 (re paleoecology & biostratigraphy, Santa Barbara Is., Calif.)
 1589 (Dinophyta secreting discoasters)
- Foster, Nancy Marie
 J 28(10): 1455 (redescription of spionid polychaete)
- FPC (see Fish protein concentrate)
- Fragala, Robert John
 J 28(5): 769 (simple reliable method for assaying ¹⁴C-labelled benthic microflora)
- Frantsi, Chris
 J 28(7): 1064 (infectious pancreatic virus in brook trout)
- Fraser River, B.C. (see Adams River)
- Fredeen, Frederick John Hartley
 J 28(1): 105 (residues of DDT, DDE, & DDD in Saskatchewan R. fish)
- Freeman, Harry Cleveland
 S 1489 (affinities of blood proteins in fish)
- Freese, Manfred
 J 28(8): 1217 (accurate labelling of fish)
- Freezing (see also Refrigeration)
 T 242 (partial, of sockeye salmon at sea in salt-fortified refrigerated sea water, re quality of canned product)
 A 230 (resume of T 242 above; also complete freezing of fish)
- Freshness (see also Quality of fishery products)
 J 28(6): 869 (octopine formation in stored scallop muscle as possible index for)
 A 203 (chemical nature of fresh flavour in fishery products)
- Freshwater fish products (see also Quality of fishery products; also names of commercial freshwater fishes)
 J 28(5): 643 (bactericidal irradiation of)
 (5): 783 (beneficial effects on keeping quality by washing off slime)
 (5): 786 (survey of heavy-metal contamination)
 (7): 1061 (practical method for drying fish)
 S 1473 (portable holding unit for iced fish)
- A 225 (resume of S 1473 above)
- Freshwater fishes (see Fishes, freshwater; Freshwater fish products)
- Frieleia halli* (Brachiopoda)
 T 268 (in B.C. faunistic surveys since 1960)
- Frobisher Bay, Baffin Is., N.W.T.
 T 265, 266, 267 (biological oceanographic observations, 1967-71)
- Frog, leopard
 T 258 (toxicity tests of trisodium nitrilotriacetate detergent on tadpoles, re pollution)
- Frost, Bruce Wesley
 J 28(1): 23 (*Calanus finmarchicus* & *C. glacialis* taxonomy)
- Fry (see names of adult fish, e.g., Salmon; Trout)
- Fucose (see Sugars)
- Fucus* (see Seaweeds)
- Fuel oil (see Oils, petroleum; Pollution)
- Fujihara, Masaaki Paul
 J 28(4): 533 (fish ladders re *columnaris* fish disease)
 (9): 1253 (*Chondrococcus columnaris* disease)
 (11): 1739 (disease susceptibility of young trout and salmon)
- Fundulus diaphanus* (see Killifish, banded)
heteroclitus (see Mummichog)
majalis (see Killifish, striped)
- Fundy, Bay of (see also Oceanography, Atlantic Coast)
 J 28(9): 1285 (methylmercury in fishes)
 B 177 (paralytic shellfish toxicity in)
 T 225 (records of associated fauna in sea scallop dredging surveys)
 S 1495 (immature herring populations)
- Fungi
 T 245 (possible cause of mountain whitefish & rainbow trout large mortalities in Kootenay L., B.C.)
- Furunculosis
 J 28(10): 1629 (first spontaneous occurrence in a marine fish)

G

- Gadidae (see also Burbot; Cods; Hake; Pollock; Tomcod)
 T 246 (bibliography of Pac. N America coast)
- Gadus macrocephalus* (see Cod, Pacific)
morhua (see Cod, Atlantic)

- Gaffkemia disease
 CHN 40 (red crab resistance to)
 41, 42 (nature & control in lobsters)
 A 180 (causative bacterium & pathology in lobster)
- Gaffkya homari* (see Gaffkemia)
- Gallop, Reginald Ambrose
 J 28(5): 643 (gamma irradiation of whitefish *Salmonella*)
- Gammarus* (see Amphipoda)
- Gantzer, Keith Alston
 T 211 (Ocean Station P oceanographic observations)
- Gar, longnose (*Lepisosteus osseus*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Gardner, Linda Joanne
 J 28(10): 1603 (ribonucleotide reductase in salmon testes)
 S 1560 (deoxyribonucleic acid polymerase from salmon testes)
- Garside, Edward Thomas
 J 28(4): 527 (ribbed mussel upper lethal temperatures)
- Gasterosteidae (see Sticklebacks)
- Gasterosteus aculeatus* (see Stickleback, threespine)
aculeatus complex (see Stickleback, threespine)
wheatlandi (see Stickleback, blackspotted)
- Gastropoda (see also Snail; also subclassifications and names of certain species)
 T 225 (associated with Bay of Fundy scallop beds)
 266 (Frobisher Bay, Baffin Is., N.W.T.)
 285 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
- Gauley, Veronica Ann
 J 28(11): 1796 (unusual type of Pac. gonatid squid)
- Gear, fishing (see also Gillnets; Trap; Trawling)
 T 246 (bibliography of trawling, N America Pac. coast)
 270 (Canadian Atl. salmon catches by various types of)
- Gee, John Henry
 J 28(6): 919 (temperature effects on pre-spawning Man. sticklebacks)
- Geiger, Shirley Evelyn
 T 220, 242 (storage of Pac. salmon at sea)
- Genera (see also Taxonomy)
 J 28(3): 323 (*Lepeophtheirus* vs. *Dentigryps* parasitic copepods)
 (3): 391 (*Mesodinium* vs. *Cyclotrichium* ciliates)
 (10): 1407 (*Berkeleyia*: new polychaetous annelid genus)
 (11): 1796 (need for redefinition of gonatid squid genera)
 S 1488 (*Pseudoactiniscus*: new dinoflagellate genus)
 1496 (*Proclavellodes*: new parasitic copepod genus from S India)
 1499 (misuse of *Caligus* in Copepoda)
 1533 (*Cressoniella*: new dipteran genus from a high Colorado mountain creek)
 1588 (*Harnischia* chironomids)
 1589 (*Dinoasteromonas*, new flagellate genus)
- Genes; Genetics (see also Phylogeny; Polymorphism)
 J 28(1): 15 (American lobster, re esterase isozymes polymorphisms)
 (6): 879 (lobster enolase & other enolases re)
 (7): 1005 (of multiple malate dehydrogenase isozymes in walleye skeletal muscle)
 (7): 1053 (genic polymorphism in tetrazolium oxidase in bluefin tuna blood & tissues) (& mariculture)
 T 222
 S 1545 (Atl. salmon & trouts, re hybridization)
 1563 (re multiple hemoglobins of rainbow & coastal cutthroat trouts)
 1571 (re multiple hemoglobins of Pac. salmon & rainbow trout)
- Genetics (see Genes)
- Geology (see also Glaciation)
 J 28(2): 139, 277 (of FRB Experimental Lakes Area, NW Ont.)
 S 1511 (origin of European flints on Canadian & U.S. Atl. coast)
 1528 (chemical fate of chlorophyll in ancient sediments)
 1587 (paleoecology & biostratigraphy, Santa Barbara Is., Calif.)
 A 199 (investigations of Gulf of St. Lawrence sediments)
 221 ("holed" concretions from Georges Bank off N.S.)
- Geomorphogeny
 J 28(7): 987 (re evolution of western N America *Salmo* species & subspecies)
 (7): 1005 (re isoenzyme phenotypes heritability of walleye from different localities)

- Geomorphology
J 28(2): 139 (of FRB Experimental Lakes Area, NW Ont.)
- Geopotential anomaly (*see* Currents; Oceanography; Tides)
- Georges Bank, off Nova Scotia
T 256 (scallop fishery studies)
- Georgia, Strait of (*see also* Juan de Fuca Strait; Oceanography, Pacific east coast)
J 28(9): 1335 (age & growth of weathervane scallop)
T 253 (temperature & current velocity program from moored meters, with examples of records, 1968-70)
S 1503 (occurrence & formation of small particles in)
A 211 (feed chains)
- Georgian Bay, Lake Huron (*see also* Huron, Lake)
S 1543 (Oligochaeta, Sphaeriidae & Chironomidae)
- Geryon quinquedens (*see* Crab, deep-sea red)
- Gestation (*see also* Reproduction)
J 28(9): 1309 (white whale)
- Getchell, Amasa Stanley
J 28(12): 1877 (DDT in lotic ecosystem)
- Gillespie, Douglas Charles
J 28(5): 783 (effects of washing on keeping quality of freshwater fish)
(11): 1807 (mobilization of mercury into fish)
- Gillichthys seta (gobiid fish)
J 28(11): 1809 (new record of lymphocystis viral infection, E Pac. coast)
- Gillnet and netting (*see* Nets)
- Gills (*see also* Blood; Hemoglobin; Respiration)
J 28(1): 115 (rakers, re anadromous vs. freshwater-resident arctic char)
(4): 465 (raker counts of lake char re N American postglacial distribution)
(4): 553 (raker counts of spring vs. autumn spawning SW Nfld. herring)
(7): 947 (blood-pressure drop in teleost, re blood pathway effects)
(10): 1609 (effects of artificial manipulation of rainbow trout)
B 177 (paralytic shellfish toxin in E Canada clams, mussel, & whelk)
S 1550 (proprioceptors in Atl. sea raven)
1554 (re rainbow trout respiratory pumps responses to hypoxia)
1566 (new species of copepod on Kenyan marine fish)
- Girth (*see* Size)
- Glaciation (*see also* Geology)
J 28(2): 141 (of FRB Experimental Lakes Area, NW Ont.)
(4): 465 (lake char intraspecific variations re N American postglacial distribution)
(5): 749 (re N American origin of arctic grayling having different lateral line scale counts)
(9): 1331 (re presence of relict *Pontoporeia affinis* amphipod in L. Washington, USA)
- Glazing (of frozen fish)
A 203 (progress in; beneficial effects on quality of product)
- GLC (gas-liquid chromatography) (*see* Note to heading Chromatography)
- Globicephala macrorhyncha* (*see* Whale, southern Atlantic pilot)
melaena (*see* Whale, pilot)
scammoni (*see* Whale, Pacific pilot)
- Glooschenko, Walter Arthur
J 28(5): 790 (influence of nutrient enrichment on N Pac. phytoplankton)
- Glucan
S 1530, 1548 (re polysaccharide structure of red seaweed *Rhodomenia pertusa*)
- Glucosamine
J 28(8): 1191 (content of Dungeness crab exoskeleton)
- Glucose (*see also* Glucan; Glycogen; Saccharides)
J 28(4): 606 (content of juvenile coho salmon blood)
(5): 625, 635 (levels in brook trout blood after handling, anesthetization & surgery)
- Glycerides (*see also* Acids, fatty; Esters; Lipids; Oils and fats)
J 28(4): 601 (fatty acid composition of sand lance triglycerides)
(7): 1015 (rainbow trout lysosomal triglyceride lipase action on)
S 1474 (fatty acid composition in rainbow smelts)
1514 (fatty acid composition of Amazon R. sturgeon jaw & blubber triglycerides)
1564 (*trans*-6-hexadecenoic acid & other fatty acids of sea urchin *Metridium dianthus*)
1572 (amounts & fatty acids of, in periwinkle, Atl. oyster & quahaug lipids)
- Glycerol (*see* Glycerides)
- Glycogen
J 28(1): 7 (seasonal changes in various food-reserve types of, in freshwater triclad flatworm)
(9): 1325 (postmortem changes in phosphorylase activity of sucker & pike muscle)
S 1458 (rainbow trout liver transferase re liver glycogen structure)

- Glycol
S 1549 (tropylium ion origin in mass spectra of arylboronic acid esters of ethylene glycol)
- Glycoproteins
J 28(8): 1173 (constituents levels in Pac. salmon, trouts, & bovine blood sera)
- Glyptocephalus cynoglossus* (see Flounder, witch)
zachirus (see Sole, rex)
- Gobiosoma paradoxum* (gobiid fish)
J 28(11): 1809 (new record of lymphocystis viral infection, E Pac. coast)
- Godfrey, Harold
CNG 90 (U.S. hatcheries chinook & coho production)
- Goldeye (*Hiodon alosoides*)
J 28(1): 105 (DDT residues in muscle of, Saskatchewan R.)
A 200 (mercury contamination, Saskatchewan R.)
- Goldfish (*Carassius auratus*)
J 28(7): 957 (vulnerability to northern pike predation)
- Goldsack, Douglas Eugene
S 1522 (optical detection pressure apparatus)
- Gonadectomy (see Hormones; Maturity; Ovary; Reproduction; Spawning; Sperm; Testes)
- Gonadotropin (see Pituitary)
- Gonads (see also Ovary; Testes)
B 177 (paralytic shellfish toxin in E Canada clams, mussels, & whelk)
- Gonyaulax* (dinoflagellates)
B 177 (*G. tamarensis* re paralytic shellfish toxicity in E Canada; similarity to *G. catanella* on Pac. coast)
- Goosefish (*Lophius americanus*) (angler; monkfish)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
(9): 1285 (methylmercury in, N.S. banks)
T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
- Gordon, Donald Collingwood, Jr.
J 28(12): 1912 (fuel oil concentration in Chedabucto Bay)
- Gots, Barra Louise
J 28(3): 452 (world distribution of brook trout, further observations)
- Gourami, blue (*Trichogaster trichopterus*)
J 28(1): 47 (spleen, liver, & kidney hemosiderin bodies re erythropoiesis)
- Grab
J 28(3): 365 (Ekman grab vs. simple corer for sampling shallow-water benthos)
- Graham, Brian William
J 28(2): 277 (surface sediment chemistry of FRB Experimental Lakes, NW Ont.)
- Grainger, Edward Henry
B 176 (Canadian marine zooplankton)
T 265 (physical, nutrient, & production observations in Frobisher Bay)
266 (zooplankton data in Frobisher Bay)
- Grand River, Ont.
J 28(1): 35, 45 (effects on benthos & fishes upstream & downstream of impoundment dam)
- Gravel (see Spawning)
- Gray, James Rutherford
J 28(4): 559 (freshwater zooplankton calorific values)
- Grayling, arctic (*Thymallus arcticus*)
J 28(5): 749 (geographic variation in lateral line scale counts re N American origin)
- Grazing (see also Copepoda; Feed; Production, secondary)
J 28(11): 1733 (production potential of seaweed-lobster community, St. Margaret's Bay, N.S.)
T 248 (aspects of nocturnal vs. continuous, by planktonic herbivores re production studies)
S 1513 (zooplankton rations re phytoplankton mortality, re marine productivity estimation)
1586 (of phytoplankton during 25-hour chlorophyll budget study)
A 211 (by zooplankton, re feed availability to different trophic levels in marine feed chain)
- Great Lakes (see also names of individual Great Lakes)
J 28(4): 616 (size of giant brook lampreys re average adult size)
S 1490 (history of lamprey invasion & combating it)
1543 (aquatic insects of Georgian Bay, L. Ontario, & L. Erie)
A 200, 201 (mercury contamination of various food fishes)
201 (fishes' environmental factors as affecting their food for man)
216 (phosphates re eutrophication (polemical))
- Great Lakes Fishery Commission
S 1484 (molecular structure re lampricide activity of halogenated mononitrophenols)

- Green, James Harvey
J 28(3): 446 (electronic processing of acoustical data for fishery research)
- Green, John Marshall
J 28(3): 383 (the tidepool sculpin (*Oligocottus maculosus*))
- Green, Roger Harrison
J 28(5): 776 (lipid and caloric contents of Cayuga L. relict amphipod)
- Greenfield, Leonard Julian
S 1519 (protein, amino acids, and ammonia determination in marine sediments)
- Greenland
A 191 (survey of American plaice eggs & larvae numbers)
192 (marine salmon fishery effect on Canadian fishery)
193 (capelin fishery)
202, 205 (summaries of A 192 above)
228 (Jakob Danielson, a Greenlandic painter: book review)
- Greenling, kelp (*Hexagrammos decagrammus*)
T 257 (taken in 1970 B.C. trawl fishery)
- Greenling, masked (*Hexagrammos octogrammus*)
J 28(6): 927 (range extension SE from Alaskan to B.C. coast; meristic data)
- Greenling, whitespotted (*Hexagrammos stelleri*)
T 257 (taken in 1970 B.C. trawl fishery)
- Greenlings (*Hexagrammidae*)
T 246 (bibliography of N America Pac. coast)
- Grenadier (*Macrourus (Coryphaenoides) rupestris*)
J 28(9): 1285 (methylmercury in, N.S. banks)
- Grenadier, roughhead (*Macrourus berglas*)
T 261 (bibliography for Gulf of St. Lawrence)
- Grenadiers (Atlantic)
T 260 (availability, standing crop, lengths, weights, etc. of the common grenadier, from Scotian Shelf surveys, 1958-68)
- Grey (see Gray)
- Grilse (see name of adult salmon or trout)
- Groundfish (see also Catches; Fisheries; Trawling; also names of commercial groundfishes)
T 210, 221, 269 (observations during surveys off B.C. & Washington coasts, 1970-71)
246 (bibliography of trawl fishery & groundfish, N American Pac. coast)
260 (abundance, availability, yields, etc., 1958-68 Scotian Shelf surveys)
A 194, 195 (Nfld. & Labrador fisheries)
- Growth (see also Age; Development; Size; Weight)
J 28(1): 65 (L. Superior lake trout before lamprey invasion)
(1): 73 (tail of big skate embryo, re respiration)
(3): 343 (salinity effects on pre-smolt coho salmon)
(4): 537 (jaw tagging effects on landlocked Atl. salmon)
(5): 711 (2 amphipod species, Marion L., B.C., re secondary production)
(5): 755 (harbour seal pups, Sable Is., N.S.)
(6): 801, 809, 815 (fish growth efficiency analysis; prediction; mathematical models)
(6): 924 (temperature requirements for larval lake cisco)
(7): 971 (*Sagitta elegans* arrow worm, re temperature, St. Margaret's Bay, N.S.)
(7): 1009 (rate, re discreteness of S Gulf of St. Lawrence seasonal herring stocks)
(8): 1071 (sodium chloride effects on *Clostridium botulinum*)
(8): 1153 (winter flounder, Long Pond, Nfld.)
(8): 1181 (rainbow trout, after eyed-embryo exposure to X-rays)
(9): 1309 (white whale, Cumberland Sound, Baffin Is., N.W.T.)
(9): 1335 (& age of weathervane scallop, Washington coast)
(10): 1621 (northern rockfish)
(10): 1635 (responses of young sockeye salmon to different diets & nutrition levels)
T 231 (arctic char in a small arctic lake)
232 (razor clam, Queen Charlotte Is. & W coast Vancouver Is., B.C.)
243 (tank-cultured sablefish)
250 (computer programming of data)
S 1494 (behaviour of growth & mortality estimates based on age-length keys)
1559 (*Uronema* marine ciliate in culture)
1590 : 545 (temperatures for optimum growth of various fishes: review)
A 179(F) (redfish)
190 (Greenland turbot)
193 (capelin)
214 (hormones for delaying sexual maturation in fish farming, to allow greater growth)
- Grubby (*Myoxocephalus aeneus*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Gruchy, Charles George
J 28(9): 1347 (record of bluespotted poacher in B.C.)
- Guanine (see Purines)
- Guillemot, common (*Uria aalga*)
T 272 (halogenated hydrocarbons detected in eggs)
- Gull, herring (*Larus argentatus*)
T 272 (halogenated hydrocarbons detected in eggs)

- Gunderson, Donald Raymond
J 28(3): 417 (Pac. ocean perch reproductive patterns)
- Gunnel, rock (*Pholis gunnellus*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 225 (associated with Bay of Fundy scallop beds)
261 (bibliography for Gulf of St. Lawrence)
- Guppy (*Poecilia reticulata*)
S 1535 (chinook salmon gonadotropin effect on sexual behaviour of hypophysectomized & gonadectomized female)
- Gymnelis viridis* (see Doctor, fish)
- Gymnocanthus tricusps* (see Sculpin, arctic staghorn)
- H**
- Habitat (see also Behaviour; Environment)
J 28(6): 903 (of 2 blood fluke species in N Pac. rockfishes re habitat of those fishes)
- Haddock (*Melanogrammus aeglefinus*)
J 28(1): 1 (dimethylamine production in dark muscle during frozen storage)
(3): 305 (bacteria producing trimethylamine from trimethylamine oxide in chilled fillets)
(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(8): 1125 (purines changes in iced fillets)
(9): 1285 (methylmercury in, N.S. banks)
T 225 (associated with Bay of Fundy scallop beds)
260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
T 261 (bibliography for Gulf of St. Lawrence)
S 1460 (bacterial spoilage of irradiated, re pre-irradiation quality)
1492 (movements of tagged, off Digby, N.S.)
1507 (standard, extreme total, & fork length conversion factors)
A 181, 182 (ICNAF 1969 Canadian research summaries)
194 (Nfld. fishery)
206 (ICNAF study on recruitment & stock abundance forecast for 1970-72)
- Haegele, Carl Walter
T 210 (*G. B. Reed* groundfish cruise 70-2)
- Haemobaphes* (see Copepoda)
- Hagfish, Atlantic (*Myxine glutinosa*) (northern hagfish)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
- T 225 (associated with Bay of Fundy scallop beds)
261 (bibliography for Gulf of St. Lawrence)
- Hagfish, northern (see Hagfish, Atlantic)
- Hagfish, Pacific (*Eptatretus (Polistotrema) stouti*)
T 221 (taken in B.C. groundfish surveys)
- Hair
J 28(6): 843 (zinc level in rat, when fed P.E.I. oysters)
- Hake, longfin (*Phycis (Urophycis) chisteri*)
T 261 (bibliography for Gulf of St. Lawrence)
- Hake, Pacific (*Merluccius productus*)
J 28(9): 1269 (integrated echo voltage re echo sounding for)
(9): 1275 (integrated echo voltage for estimating populations in Puget Sound, Wash.)
T 210, 221, 269 (catches during B.C. groundfish surveys, also observations of USSR hake trawling)
210 (size & sex composition; feed)
246 (bibliography)
257 (taken in 1970 B.C. trawl fishery)
- Hake, red (*Urophycis chuss*) (squirrel hake)
J 28(9): 1285 (methylmercury in, N.S. banks)
T 225 (associated with Bay of Fundy scallop beds)
261 (bibliography for Gulf of St. Lawrence)
- Hake, silver (*Merluccius bilinearis*)
J 28(1): 1 (trimethylamine production in dark muscle during frozen storage)
(7): 935 (summer periodic component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(9): 1285 (methylmercury in, N.S. banks)
T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
A 182 (ICNAF Canadian 1969 research summary)
- Hake, spotted (*Urophycis regius*)
T 261 (bibliography for Gulf of St. Lawrence)
- Hake, squirrel (see Hake, red)
- Hake, white (*Urophycis tenuis*)
J 28(1): 59 (DDT residues in N.B.)
(7): 935 (summer periodic component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(9): 1285 (methylmercury in Bay of Fundy & N.S. banks)
T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CIIN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Repos. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- 261 (bibliography for Gulf of St. Lawrence)
272 (halogenated hydrocarbon residues detected in)
- Halibut, Atlantic (*Hippoglossus hippoglossus*)
J 28(1): 1 (amine production in frozen stored muscle)
(7): 935 (occasional component of Passamaquoddy fish communities, N.B.)
(8): 1125 (purines changes in iced fillets)
(9): 1285 (methylmercury in, N.S. banks)
T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
- Halibut, California (*Paralichthys californicus*)
T 246 (bibliography)
- Halibut, Greenland (*Reinhardtius hippoglossoides*) (Greenland turbot)
J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(9): 1285 (methylmercury in, N.S. banks)
T 192 (vertebral & other meristic characteristics)
246 (bibliography, W Arctic coast)
261 (bibliography, Gulf of St. Lawrence)
A 181, 182 (ICNAF Canadian 1969 research summaries)
190 (general biology)
194 (Nfld. fishery)
- Halibut, Pacific (*Hippoglossus stenolepis*)
T 221, 269 (catches during B.C. groundfish surveys)
257 (taken in 1970 B.C. trawl fishery)
- Halifax Harbour, N.S.
T 219 (sea level variations analysis)
- Halliday, Ralph Gilmore
A 206 (1970-72 haddock recruitment & abundance)
- Hamilton, Andrew Lloyd
J 28(2): 257 (zoobenthos of 15 FRB Experimental Lakes, NW Ont.)
S 1536 (deformed larvae in Canadian lakes)
1543 (components of bottom fauna, Great Lakes)
- Hamilton, Robert Duncan
S 1519 (protein, amino acids, & ammonia determination in marine sediments)
1559 (cultural characteristics of pelagic marine hymenostome ciliate)
- Hammerhead, scalloped (*Sphyrna lewini*) (hammerhead shark)
A 182 (ICNAF Canadian 1969 research summary)
- Handling
J 28(5): 625 (physiological effects of, on brook trout)
(12): 1823 (effects on striped bass oxygen requirements)
T 242 (harmful effect of mishandling sockeye salmon during catching & storage at sea for processing)
- A 203 (fish on vessels and in processing plants)
- Hansen, Judith Anne
T 209 (filing bibliographic references)
- Hardness of natural waters (see also Calcium derivatives; Carbonate)
J 28(1): 73 (thermal springs, Mt. Rainier National Park, USA)
(2): 171 (many small NW Ont. lakes)
T 202 (re diatoms & heavy-metal pollutants, NW Miramichi R., N.B.)
- Harling, Wayne Robert
T 221 (*G. B. Reed* groundfish cruise 70-3)
- Harman, Paul Douglas
J 28(1): 113 (tricaine methanesulfonate in fish muscle)
- Harnischia* (Chironomidae)
S 1588 (nomenclature & phylogeny; synonymy)
- Hart, Josephine Frances Lavinia
J 28(10): 1527 (reptant decapod Crustacea)
- Hartman, Olga
J 28(10): 1407 (compendium of abyssal polychaetous annelids)
- Harvesting (see also Apparatus; Catches; Culture; Fisheries; Nets; Traps; Trawling; etc.)
B 177 (regulations re paralytic shellfish toxicity in E Canada)
178 (Pac. oyster cultured on rafts in B.C.)
- Harvey, Harold Henry
J 28(12): 1883 (Manitoulin lakes limnology)
- Hassan, El Sayed Mohamed
T 219 (physical oceanography of St. Margaret's Bay)
- Hatcheries (see also Culture; Eggs)
J 28(4): 587 (factors influencing activity scope & active & standard metabolism in wild vs. hatchery rainbow trout)
(8): 1185 (bacterial counts of commercial fish diets)
(9): 1350 (infectious pancreatic necrosis virus found in brook trout in 2 Ont.)
CNG 90 (coho & chinook salmon production by U.S.)
- Hatching (see Culture; Development; Eggs; Hatcheries)
- Hauser, Brian William
J 28(2): 129 (initial survey of FRB Experimental lakes, NW Ont.)

- Haynes, Evan Baxter
J 28(9): 1335 (age & growth of giant Pac. sea scallop)
- Healey, David Andrew
T 211 (Ocean Station P oceanographic observations)
- Heart (*see also* Blood; Hemoglobin; Respiration)
J 28(1): 15 (tissue esterase isozymes polymorphisms in American lobster)
(4): 491 (cardiac responses to anoxia in sea raven)
(5): 781 (improved vascular catheterization procedure for teleost fish aorta)
(11): 1793 (*see* T 229 below)
T 229 (feeding rats raw or partially hydrogenated Atl. herring oil re fat deposition in)
S 1575 (weight re body weight & feeding rate of Cetacea)
- Hedriodiscus truquii* (*see* Diptera)
- Helminths (*see* classifications of)
- "Hemagglutinogens"
J 28(8): 1208 (comparative heteroagglutination & agglutination inhibition of mummichog & striped killifish erythrocytes)
- Hematocrit (*see* Blood; Hemoglobin)
- Hemibaphes intermedius* (*see* Copepodà)
- Hemigrapsus oregonensis* (*see* Crab, green shore)
- Hemithiris psittacea* (Brachiopoda)
T 268 (in B.C. faunistic surveys since 1960)
- Hemitripterus americanus* (*see* Raven, sea)
- Hemoglobin (*see also* Blood; Respiration)
J 28(4): 606 (content of juvenile coho salmon)
(10): 1621 (electropherograms re northern rockfish taxonomy)
(11): 1745 (of dwarf & large white suckers & longnose sucker)
S 1563 (subunit allelic polypeptides & molecular basis of rainbow & coastal cutthroat trouts multiple hemoglobins)
1571 (polypeptides re molecular basis for multiplicity of Pac. salmon & rainbow trout hemoglobins)
- Hemolymph (*see also* Blood)
J 28(8): 1191 (amino acids of Dungeness crab)
- Hemosiderin bodies
J 28(1): 47 (as storage sources of iron in fish spleen, liver, & kidney tissues)
- Hennick, Daniel
J 28(4): 608 (hermaphroditic specimen of weather-vane scallop)
- Hepatopancreas (*see also* Pancreas)
J 28(5): 793 (selective accumulation of yellow phosphorus from sea water by lobsters)
(8): 1191 (fatty & amino acids of Dungeness crab)
- Hepatoxylon trichiuri* (*see* Cestoda)
- Herbicides
S 1536 (possible cause of deformed chironomids larvae in L. Erie & Okanagan R. lakes, B.C.)
A 109(F) (2,4-D ester for eelgrass control on oyster beds)
- Heredity (*see also* Evolution; Genes)
J 28(7): 1005 (re phenotypes of malate dehydrogenase isoenzymes in skeletal muscle of walleye from different locations)
- Hermaphroditism
J 28(4): 608 (of an Alaskan weathervane scallop)
- Herring, Atlantic (*Clupea harengus harengus*)
J 28(4): 553 (meristic differences between SW Nfld. spring & autumn spawning)
(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(7): 1009 (discreteness of Gulf of St. Lawrence populations in spring & autumn fisheries)
(9): 1285 (methylmercury in, N.S. banks)
(11): 1793 (*see* T 229 below)
CJG 18: 1 (recent developments in Nfld. fishery); 20 (tagging results in SW Nfld. coastal waters); 25 (investigations in NE Nfld. & Labrador)
T 217 (petroleum oil characterization re source of pollution toxicity to)
229 (rat tests to see if feeding raw or partially hydrogenated herring oil causes heart or liver fat deposition)
252 (larvae ecology & distribution along southern N.S. coast)
255 (yellow phosphorus toxicity tests)
261 (bibliography for Gulf of St. Lawrence)
272 (halogenated hydrocarbon residues detected in)
S 1464 (critique on otolith use for aging Gulf of St. Lawrence)
1495 (Bay of Fundy populations of immature)
1584 (mortality from pollution of N Sydney)

- Harbour, N.S., by coke-oven intermediate oil)
- 1591 (pristane & other hydrocarbons in Canadian commercial oil)
- A 181, 182 (ICNAF Canadian 1969 research summaries)
- 194 (Nfld. fishery)
- 200 (mercury contamination)
- 207, 219 (recent commercial & research events in Canadian fishery)
- 208 (Bay of Fundy vertebral numbers; origin of N.B. "sardine" herring)
- 219 (*Anasakis* roundworm infection incidence variation)
- Herring, blueback (*Alosa aestivalis*)
- J 28(7): 1057 (effect of warm water of nuclear power plant discharge canal)
- Herring, lake (see Cisco, lake)
- Herring, Pacific (*Clupea harengus pallasii*)
- J 28(9): 1269 (integrated echo voltage re echo sounding for)
- (10): 1545 (combined temperature & salinity effects on eggs & early development)
- (10): 1663 (offshore distribution, on basis of fur seal stomach contents records)
- (12): 1921 (predation on young chinook salmon in B.C. estuary)
- T 210, 221 (catches during B.C. trawl surveys)
- 213 (B.C. offshore surveys, 1969)
- 257 (taken during 1970 B.C. trawl fishery)
- A 200 (mercury contamination, B.C.)
- Herrington, Harry Biggar
- S 1543 (components of bottom fauna Great Lakes)
- Herudinea (see Leeches)
- Hesperophylax oreades* (see Caddisflies)
- Hewitt, Gordon Christopher
- J 28(3): 323 (species of *Lepeophtheirus* from sunfish)
- (8): 1143 (locomotion in Caligidae)
- Hexagrammidae (greenlings)
- T 246 (bibliography of N America Pac. coast)
- Hexagrammos decagrammus* (see Greenling, kelp)
- octogrammus* (see Greenling, masked)
- stelleri* (see Greenling, whitespotted)
- Hexosamine (see Sugars)
- Hexose (see Sugars)
- Hexuronic acid
- J 28(8): 1173 (levels in salmon, trout, & bovine blood sera)
- Hiltz, Doris Fraser
- J 28(6): 869 (octopine in postmortem muscle of sea scallop)
- Hines, James Alexander
- J 28(8): 1125 (inosine phosphate breakdown in fishes)
- Hiodon alosoides* (see Goldeye)
- Hippoglossoides elassodon* (see Sole, flathead)
- platessoides* (see Plaice, American)
- Hippoglossus hippoglossus* (see Halibut, Atlantic)
- stenolepis* (see Halibut, Pacific)
- Hirudinoidea (see Leeches)
- Histology (see also Cytology; Morphology)
- J 28(1): 47 (blue gourami spleen hemosiderin bodies)
- (1): 112 (cutthroat trout organs re leukemia condition)
- (3): 391 (red-water ciliate *Mesodinium rubrum*)
- (3): 448 (lake trout subcutaneous fibroma)
- (4): 477, 485 (effects of hormones & cortisol on tissues of gonadectomized sockeye salmon)
- (4): 505 (comparisons of adrenal-cortical cells of wild vs. hatchery landlocked Atl. salmon)
- (6): 903 (blood fluke parasitism in copper rock-fish)
- (7): 947 (gill lamella of teleosts re gill blood pressure)
- (8): 1198 (supernumerary copulatory organs in *Dugesia tigrina* turbellarian)
- (9): 1241 (Pac. flounders skin tumours)
- (10): 1677 (sea anemone nematocyst types)
- (11): 1793 (heart of rat fed raw or hydrogenated Atl. herring oil)
- S 1477 (Ledig cell homolog in Atl. salmon testis)
- 1478 (Atl. salmon interrenal tissue, re steroidogenesis)
- 1536 (deformed chironomids larvae)
- 1550 (Atl. sea raven gill proprioceptors)
- 1551 (postlarval *Macoma balthica* clam)
- 1562 (Atl. salmon mid-testis re androgens)
- 1574 (oral remnants of nasopalatine canals in fin whales)
- History (see also Life history)
- J 28(3): 452 (worldwide distribution of brook trout)
- (5): 663 (worldwide introductions of rainbow trout)
- B 175 (Maritime Provinces oyster industry)
- 177 (paralytic shellfish poisoning, Canadian Atl. coast)
- S 1490 (lamprey invasion of Great Lakes & combating it)
- Hitz, Charles Robert
- J 28(9): 1335 (age & growth of giant Pac. sea scallop)
- Hledin, R. V.
- J 28(8): 1173 (Pac. salmon glycoprotein constituents)
- Hodder, Vincent Mackay
- J 28(4): 553 (Atl. herring meristic characters)

- CJG 18: 1 (Nfld. herring fishery recent developments)
A 219 (Atl. herring fisheries)
- Hodgkiss, Willie
J 28(10): 1511 (identification of bacterial flora in salmon streams)
- Hogan, James William
J 28(4): 613 (enzymatic properties of plasma esterases, channel catfish)
- Hogan, Roger Lloyd
J 28(4): 610 (concentrations of dieldrin in blood & brain of green sunfish at death)
- Holding (see also Chilling; Ice; Refrigeration; Sea water, refrigerated; Storage)
S 1473 (portable refrigerated unit for iced fish in remote freshwater fisheries)
- Holmes, John Carl
J 28(6): 903 (habitat segregation in blood flukes)
- Holmgren, S. K.
J 28(2): 189 (primary production & phytoplankton of FRB Experimental Lakes, NW Ont.)
(11): 1763 (eutrophication of one of FRB Experimental Lakes, NW Ont.)
- Holobomolochus* (cyclopoid parasitic copepods)
J 28(10): 1563 (description of *H. venustus* & *H. occultus*, new species; first B.C. record for *H. spinulus*)
- Holopedium* (see Cladocera)
- Holothuroidea (see Sea cucumbers)
- Homarus americanus* (see Lobster, American)
- Homing (see also Odour; Marking; Migration; Spawning; Tagging)
J 28(3): 383 (behaviour of tidepool sculpin)
- Hooper, Shirley Norma
T 249 (methodology for identification of marine oils in hydrogenated edible oil products)
S 1481 (fatty acids from *Euphoria longana*)
1528 (geological fate of chlorophyll)
1564 (*trans*-6-hexadecenoic acid and alcohol in sea anemone lipids)
1572 (distribution of fatty acids in lipids of 3 species of molluscs)
- Hormones (see also Steroids)
J 28(4): 477, 485 (histological effects on tissues of gonadectomized sockeye salmon)
(4): 505 (histology of adreno-cortical cells in Atl. salmon)
- S 1488 (binding affinities of blood proteins for steroid, of 3 Atl. fishes)
1535 (chinook salmon gonadotropin effect on sexual behaviour of hypophysectomized & gonadectomized female guppies)
1562 (major, in sexually maturing Atl. salmon testicular & peripheral plasma)
1576 (Atl. sturgeon plasma corticosteroids & testosterone)
A 214 (sex, re fish farming)
- Horne, David Alexander
T 255 (phosphorus toxicities to seawater-main-tained fish)
S 1562 (stages of sexual development in Atl. salmon)
- Horton, Howard Franklin
J 28(5): 745 (cryo-preserved sperm fertilize salmon eggs)
(12): 1915 (preservation of trout sperm)
- Hoskins, Gary Edward
J 28(10): 1511 (identification of bacteria flora in salmon streams)
T 245 (B.C. wild fish mortalities)
- Hotsprings (see Springs, thermal)
- Houston, Arthur Hillier
J 28(5): 625 (handling and anesthetization effects on brook trout)
(5): 635 (brook trout variations re surgery)
(5): 781 (improvement in vascular catheterization procedure for salmonid and other teleost fishes)
- Hoyle, Richard James
T 255 (phosphorus toxicities to seawater-main-tained fish)
S 1471 (lipase assay based on acetaldehyde liberation from vinyl oleate)
- Hubbard, Lyle Turner, Jr.
J 28(12): 1831 (distribution and abundance of Salpidae)
- Hudson Bay
A 200 (mercury contamination of fishes & marine mammals)
- Hughes, George Morgan
S 1554 (responses of respiratory pumps to hypoxia in rainbow trout)
- Hughes, Roger Neville
S 1580 (classification of P.E.I. benthic samples)
- Hungate, Frank Porter
J 28(4): 533 (fish ladders re *columnaris* fish disease)

- Hunter, John Gerald
 T 231 (lake potential in production of landlocked arctic char)
 MSP 13(F) (studies in Canada's Arctic)
 A231 (FRB studies in Canada's Arctic)
- Huron, Lake (*see also* Georgian Bay; Manitoulin Island; Great Lakes)
 J 28(4): 616 (giant brook lampreys size re average adult size)
 (8): 1133 (adult & juvenile walleye migrations between L. Erie &)
 (12): 1857 (B.C. & U.S. kokanee transplants into)
- Hurst, Robert Edward
 S 1522 (optical detection pressure apparatus)
- Hutzing, Otto
 S 1463 (identification of polychlorinated biphenyls & DDT)
- Hwang, Pei Chu
 S 1471 (lipase assay based on acetaldehyde liberation from vinyl oleate)
- Hyaella azteca* (*see* Amphipoda)
- Hynes, Hugh Bernard Noel
 J 28(1): 35 (differences in benthos caused by an impoundment)
 (1): 45 (differences in fish populations caused by mainstream impoundment)
- Hyas araneus* (*see* Crabs, toad)
- Hybopsis biguttatus* (*see* Chub, hornyhead)
gracilis (*see* Chub, flathead)
micropogon (*see* Chub, river)
plumbea (*see* Chub, lake)
- Hybridization
 J 28(7): 987 (*Salmo "rosei"* considered a hybrid of golden trout \times Kern R. trout)
 S 1545 (electrophoretic analysis of Atl. salmon \times brown trout protein & esterase systems re detecting hybrids in natural populations)
 A 214 (sex hormones to accelerate sexual maturity for testing)
- Hydrocarbons (*see also* Insecticides; Lipids; Oils, petroleum)
 T 272 (polychlorinated biphenyls & other industrial halogenated hydrocarbons in the environment: review, assay methods, & bibliography)
 S 1558, 1570 (polychlorinated biphenyls: toxicity & uptake from sea water)
 1584 (in pollution from coke-oven intermediate oil as cause of fish mortality)
 1591 (pristane, phytane & other alkanes in some marine & freshwater Canadian commercial fish oils)
- Hydrodynamics (*see also* Currents; Hydrography; Oceanography; Transport, mass)
 T 264 (fluid mechanics of netting & low-solidity screens)
- Hydrogen
 A 232 (^3H (tritium) as marine radioactive pollutant)
- Hydrogen sulphide (*see* Sulphides)
- Hydrogenated oils & fats
 T 249 (analysis methods for detecting marine oil adulteration of all-vegetable margarine & cooking fats)
- Hydrography (*see also* Oceanography)
 T 199 (SW north Atl. Ocean, 1969)
 A 181, 182 (ICNAF Canadian 1969 research summaries)
- Hydroids
 J 28(10): 1595 (*Veella* behaviour re chondrophore evolution; arguments to consider *V.* as hydroids; electrical pulses in)
 T 225 (associated with Bay of Fundy scallop beds)
- Hydrolagus collieri* (*see* Ratfish)
- Hymenoptera (*see also* Insects, aquatic)
 S 1532 (*Copidosoma naevia* of a high Colorado mountain creek)
- Hypocholesterolemia (*see* Sterols)
- Hypophysectomy (*see* Pituitary gland)
- Hypoxia (*see* Respiration)
- Hypsopsetta guttulata* (*see* Turbot, diamond)
- I
- Ice; Icing (*see also* Chilling; Refrigeration)
 T 220 (effects of storing sockeye salmon in ice vs. refrigerated sea water on quality of canned product)
 265 (depth & contained nutrients, Frobisher Bay, Baffin Is., N.W.T.)
 S 1473 (portable refrigerated unit for holding iced fish in remote freshwater fisheries)
 A 203 (fish on boats & in processing plants)
 225 (resume of S 1473 above)
- Icelus bicornis* (*see* Sculpin, twohorn)
spatula (*see* Sculpin, spatulate)
spiniger (*see* Sculpins)
- Ichthyomyzon bdellium* (*see* Lamprey, Ohio)
castaneus (*see* Lamprey, chestnut)
unicuspis (*see* Lamprey, silver)
- ICNAF (*see* International Commission for the North-west Atlantic Fisheries)

- Icosteus aenigmaticus* (see Ragfish)
- Ictalurus catus* (see Catfish, white)
melas (see Bullhead, black)
natalis (see Bullhead, yellow)
nebulosus (see Bullhead, brown)
punctatus (see Catfish, channel)
- Ichtiobus cyprinellus* (see Buffalo, bigmouth)
- Identification (see Keys)
- Idler, David Richard
 J 28(10): 1675 (sterols of a brachiopod)
 S 1457 (desmosterol content of dulce red algae sterols)
 1459 (new marine sterol)
 1477 (Leydig cell homolog in testis of sexually mature Atl. salmon)
 1478 (identification of interrenal tissue in American Atl. sturgeon)
 1479 (in-vitro steroidogenesis in yellow bodies of American Atl. sturgeon)
 1489 (affinities of blood proteins in fish)
 1506 (identification of scallop sterols)
 1527 (sterols of Crustacea)
 1562 (stages of sexual development in Atl. salmon)
 1576 (hormonal steroids in sturgeon plasma)
 A 198 (stable protein from the sea)
- Iioka, Chikara
 T 236 (eggs & larvae of *Limanda yokohamae*)
- Iles, Christine
 J 28(1): 31 (swordfish parasites from NW Atl.)
- Iles, Thomas Derrick
 A 207 (Atl. herring fisheries)
 208 (N.B. herring & sardines)
- Illex illecebrosus* (see Squid, shortfinned)
- Illumination (see Bioluminescence; Darkness; Light, reactions to; Radiation; Vision)
- Immunology (see Antibodies; Disease; Vaccination; Viruses)
- Impoundment (see Culture; Dams)
- Indexes
 B 176 (to Canadian Arctic, Pac., & Atl. zooplankton)
 T 209 (storage & retrieval of indexed & annotated bibliographical references)
 246: 90 (bibliography of translation indexes, re N America Pac. coast trawled fishes)
- Indicator species
 J 28(1): 31 (*Tristoma* trematode species re swordfish populations)
 T 202 (river diatoms re heavy-metal contamination of water)
 A 181 (*Anisakis* roundworms & *Eubothrium crassum* tapeworm re geographical origin of Atl. salmon stocks)
- Infection (see also Disease; Furunculosis; Parasites; Tumours; Viruses; Yeasts)
 J 28(7): 1064 (pancreatic necrosis virus in brook trout; effect of stress on detecting bacterial or viral infections in fishes)
 T 226 (shiners as possible immune carriers of *Aeromonas liquefaciens* bacteria disease to salmon & suckers, NW Miramichi R., N.B.)
 A 58(F) human dermatitis from fluke larvae)
 186 (infectious diseases of USSR fishes & control: book review)
- Ingram, Peter
 S 1458 (branching enzyme in trout liver)
- Inia geoffrensis* (see Dolphin, Amazon River)
- Inlets (see also Oceanography and names of inlets)
 J 28(8): 1077 (physical oceanographic features of 32 Chilean, & comparison with B.C./Alaska fiord inlets)
- Inosine and derivatives
 J 28(8): 1125 (5'-monophosphate degradation in skeletal muscle of Atl. fishes re keeping quality)
- INPFC (see International North Pacific Fisheries Commission)
- Insecticides (see also Pesticides; Pollution; Toxicants)
 J 28(1): 59 (DDT residues in Canadian Atl. fishes & shellfishes tissues)
 (1): 105 (DDT residues in Saskatchewan R. fishes muscle)
 (4): 610 (dieldrin concentration in green sunfish blood & brain)
 (4): 613 (anticholinesterase activity of several)
 (5): 705 (biological magnification & degradation of DDT & aldrin by freshwater invertebrates)
 (12): 1877 (DDT accumulation & persistence in a lotic ecosystem)
 S 1463 (mass spectrometric identification of polychlorinated biphenyls & DDT in mixtures)
 1536 (possible cause of deformed chironomids larvae in L. Erie & Okanagan R. lakes, B.C.)
 1552 (decrease in DDT residues in Atl. salmon parr after N.B. forest spraying)

- 1558, 1570 (toxicity & uptake of polychlorinated biphenyls in sea water re *Gammarus oceanicus* amphipod)
 A 201 (DDT re Great Lakes fishes as human food)
 222 (DDT effects on physiology & behaviour of salmonids at sub-lethal levels)
- Insects, aquatic (*see also* classifications; *also* Insecticides)
 J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
 (1): 73 (ash & caloric content of some thermal spring)
 (5): 705 (biological magnification & degradation of insecticides by)
 (6): 849 (samplings from shallow stream beds)
 (6): 928 (in feed of fluffy & tidepool sculpins)
 (9): 1322 (quantitative sampler for forms on aquatic plants)
 (11): 1715 (re L. Ontario bays benthos)
 T 258 (toxicity tests of trisodium nitrilotriacetate detergent on larvae, re pollution)
 S 1532, 1533 (chironomids, etc. in high mountain North Boulder Creek, Colorado)
 1543 (Oligochaeta, Sphaeriidae & Chironomidae of Georgian Bay, L. Ontario, & L. Erie)
- Instruments (*see* Apparatus)
- International Commission for the Northwest Atlantic Fisheries (ICNAF)
 T 270 (Canadian Atl. salmon catches by areas, 1950-69)
 S 1492 (tagged haddock movements off Digby, N.S.)
 1493 (assessments of mesh size increases of cod trawls)
 1494 (growth & mortality estimating on basis of age-length keys)
 1495 (Bay of Fundy immature herring populations)
 1507 (haddock length conversion factors)
 1540 (catch/effort assessments for major cod stocks)
 1541 (trends in American plaice fishery, Nfld.)
 1542 (temperatures & salinities in E Nfld. ICNAF area, 1969)
 A 181, 182 (Canadian 1969 research report, Subareas 1-5)
 191 (American plaice eggs & larvae)
 206 (haddock recruitment & stock abundance, 1970-72)
 207 (recent events in Canadian Atl. herring fisheries)
 208 (vertebral numbers of Bay of Fundy herring; origin of N.B. sardines)
- International North Pacific Fisheries Commission (INPFC)
 A 204 (salmons & steelhead trout longline fishing, tagging, racial, & oceanographic FRB studies, 1965)
- Interrenal tissue (*see also* Kidney; Pituitary gland)
 J 28(4): 477 (histological effects of hormones & cortisol on gonadectomized sockeye salmon)
 S 1478, 1479 (histological identification in Atl. sturgeon re steroidogenesis)
- Intestinal tract (*see* Feed; Digestion)
- Introduced species (*see* Species, introduced; Transplantation)
- Invertebrates (freshwater in general) (*see also* Benthos; Insects, aquatic; *also* classifications and names of species)
 J 28(5): 705 (biological magnification & degradation of insecticides by)
 (6): 849 (sampling benthos in shallow streams)
 (8): 1205 (2 simple epifaunal collectors)
 (11): 1683 (benthic macroinvertebrates associations & species diversity in L. Ontario bays)
 (11): 1699 (benthic macroinvertebrate production, L. Ontario bays)
 (11): 1715 (benthos community metabolism, L. Ontario bays)
 (12): 1877 (DDT accumulation & persistence in)
 S 1532, 1533 (in high mountain North Boulder Creek, Colorado)
 A 224 (parasites of N American, USSR, & European coregonid fishes)
- Invertebrates (marine in general) (*see also* Benthos; *also* classifications and names of species)
 J 28(8): 1167 (details of winter flounder stomach contents)
 (8): 1205 (2 simple epifaunal collectors)
 (10): 1583 (possibilities of speciation by X-ray irradiation spectra)
 (12): 1877 (DDT accumulation & persistence in)
 B 176 (synopsis of Canadian Arctic, Pac., & Atl. marine zooplankton; *see* index of that Bulletin)
 T 225 (associated with Bay of Fundy scallop beds)
 266, 267 (zooplankton & phytoplankton, Frobisher Bay, Baffin Is., N.W.T.)
 S 1580 (classification & ordination of many shallow benthic species, P.E.I.)
- Iredale, David Gordon
 J 28(7): 1061 (method of drying freshwater fish)
- Iron derivatives
 J 28(1): 47 (hemosiderin as storage form of, in fish spleen, kidney, & liver tissues)
 (2): 171, 203 (in waters of many small NW Ont. lakes)
 (2): 203 (re photosynthesis by plankton in samples of water from small NW Ont. lakes)
 (2): 277 (in sediments of 16 small NW Ont. lakes)
 (6): 843 (level in P.E.I. oysters)
 S 1529 (distribution in L. Ontario)
 A 199 (re Gulf of St. Lawrence marine sediments geology)

- 232 (^{55}Fe as radioactive marine pollutant)
- Irradiation (*see also* Light, reactions to; Radiation; Radioactivity; X-rays)
- J 28(5): 643 (by ^{60}Co for killing *Salmonella* bacteria in smoked fish)
- S 1460 (bacterial spoilage of haddock re pre-irradiation quality)
- Irwin, Brian
- T 247 (phytoplankton production & nutrients in Bedford Basin)
- Isoenzymes (*see* Enzymes)
- Isopeptic measurements
- S 1512, 1515 (re activity coefficients of H_2O - NaCl - MgCl_2 (& $-\text{Na}_2\text{SO}_4$) ternary systems at 25 C)
- Isoptoda
- J 28(6): 928 (feed of tidepool & fluffy sculpins)
- T 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Isoopropanol (*see* Alcohols)
- Isopsetta isolepis* (*see* Sole, butter)
- Isotopes (radioactive) (*see also* Radioactivity; *also* names of elements) (*Note*: data on use of ^{14}C are, with few exceptions, not indexed because of its frequent use; *see* Photoisynthesis)
- J 28(5): 769 (liquid scintillation assay method for ^{14}C -labelled benthic microflora)
- (3): 369; (10): 1583 (re radioisotope X-ray fluorescence spectrometry)
- A 232 (as radioactive marine environment pollutants)
- Isozymes (*see* Enzymes)
- Isurus oxyrinchus* (*see* Mako, shortfin)
- Itch, swimmers' and clam diggers'
- A 58(F) (cause, control, & treatment)
- Ito, Jun
- J 28(12): 1921 (herring predators on young salmon)

J

- Jamieson, William David
- S 1463 (identification of polychlorinated biphenyls & DDT)
- Jangaard, Peter Michael
- A 214 (hormone research in fish farming)
- Japan
- T 246 (bibliography of trawl fishery off N America Pac. coast)
- Jasper National Park, Alta.
- J 28(3): 311 (crustacean plankton of 57 alpine & subalpine lakes & ponds)
- Jaw (*see also* Morphology (biological))
- J 28(10): 1545 (abnormalities of Pac. herring larvae, raised at elevated temperatures, & possible detriment to adult feeding)
- S 1514 (fat of Amazon R. dolphin re echolocation ability)
- Jellyfish
- J 28(10): 1595 (*Vellela* concept behaviour re Chondrophora evolution)
- Jenkins, Thomas Mandeville, Jr.
- J 28(7): 1019 (social behaviour re introduced rainbow trout)
- Jensen, Alvin Lee
- J 28(3): 458 (response of brook trout populations to a fishery)
- Johnson, Bernard Gudy Herbert
- S 1484 (molecular structure & biological activity among mononitrophenols containing halogens)
- Johnson, Byron Thomas
- J 28(5): 705 (pesticide accumulation in invertebrates)
- Johnson, Lionel
- T 165(F) (central Canada rainbow trout farming)
- Johnson, Murray George
- J 28(11): 1683 (L. Ontario benthos species diversity)
- (11): 1699 (L. Ontario benthos production)
- (11): 1715 (L. Ontario benthos community metabolism)
- Johnson, Waldo Eugene
- J 28(2): 123 (background of FRB Experimental lakes, NW Ont.)
- A 233 (ecology and our pollution problems)
- Jonas, Richard Edmund Ernest
- J 28(7): 1015 (trout lysosomal lipase)
- (12): 1837 (tissue solubilization by lysolecithin)

Abbreviations: J — *Journal*. B — *Bulletin*. AR — *Annual Report*. R — *Review*. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — *Technical Reports*. MSP — *Miscellaneous Special Publications*. S — *Studies*. A — *Interpretive Articles*.

- Jones, Bernard Raymond
J 28(6): 924 (temperature requirements for larval ciscos)
- Jones, Meredith Leam
J 28(10): 1445 (new species and redescrptions of *Magelona*)
- Jones, Robert Andrew
J 28(8): 1167 (net avoidance behaviour in shad)
- Jørgensen, Poul Erik Vestergård
J 28(6): 875 (rainbow trout antibodies to Egtved virus)
- Juan de Fuca Strait (see also Georgia, Strait of; Oceanography, Pacific east coast)
T 210 (oceanography & groundfish catches during trawling survey, 1970)

K

- "K-line" (see also Growth)
J 28(6): 801, 809, 815 (re growth efficiency analysis)
- Kabata, Zbigniew
J 28(8): 1143 (locomotion in Caligidae)
(10): 1563 (Bomolochidae from B.C. fishes)
S 1496 (new species of copepod from India)
1501 (haemobaphes in B.C.)
1566 (new female parasitic copepod in Indian Ocean)
1567 (Crustacea as enemies of fishes)
1568 (Copepoda parasitic on Australian fishes)
A 186 (control of infectious disease in fish)
- Karuppannan, Nalligoundanoor Vealappagounder
J 28(9): 1342 (technique for measurement of carbon dioxide in fish)
- Karyotypes (see Chromosomes)
- Kason, William Rudolf
S 1531 (casein and polyethylenimine)
- Katodinium auratum* (see Dinoflagellates)
- Katsuwonus* (see Tuna, skipjack)
- Kaye, Clifford Alan
S 1511 (European flints on N American coast)
- Ke, Paul Jean
J 28(7): 1055 (distillation of fluoride in soils)
T 233 (possible toxic materials in Nfld. bottom deposits)
S 1505 (fluoride in polluted waters)
1572 (distribution of fatty acids in lipids of 3 species of molluscs)
- Keleher, James John
T 176 (bibliography of lake trout 1929-1969)

- Kennedy, Victor Samuel
J 28(8): 1153 (Nfld. winter flounder)
- Kennedy, William Alexander
T 243 (1970 sablefish culture progress)
- Kern River Basin, California
J 28(7): 987 (systematics & evolution of *Salmo* species & subspecies of Upper Basin, re western N America *Salmo*)
- Kerr, Stephen Roy
J 28(6): 801 (analysis of laboratory experiments on growth efficiency of fishes)
(6): 809 (prediction of fish growth efficiency in nature)
(6): 815 (simulation model of lake trout growth)
- Kerswill, Charles James
J 28(3): 351 (Miramichi salmon smolt utilization)
MSP 13(F) (studies in Canada's Arctic)
- Keyhole Lake, Victoria Island, Canadian Arctic)
T 231 (potential productivity of arctic char, from limnological & biological studies)
- Keys
J 28(3): 401 (*Mesodinium* red-water ciliates)
(4): 543 (Canadian freshwater leeches (Hirudinoidea))
(10): 1469 (*Syllides* polychaetes)
(10): 1407 (genera in Fauveliopsidae, a new family of polychaetous annelids)
(10): 1645 (*Rhabdochona* nematode species parasitic in N & Central America fishes)
T 246 : 89 (bibliography of, for trawl fishes off N America Pac. coast)
S 1494 (behaviour of growth & mortality estimates based on age-length keys)
1543 (tubificid oligochaetes of E North America)
- Keyte, Freeman Kilbourne
T 271 (Gulf of St. Lawrence circulation patterns)
- Khan, Nuzrat Yar
J 28(4): 465 (lake char postglacial distribution)
- Kidney (see also Interrenal tissue)
J 28(1): 47 (hemosiderin bodies re erythropoiesis in blue gourami)
(1): 112 (histology of cutthroat trout with leukemia condition)
(4): 485 (histological effects of hormones & cortisol on gonadectomized adult sockeye salmon)
(6): 843 (zinc level in rat, when fed P.E.I. oysters)
(7): 1064 (vs. feces re presence of pancreatic necrosis virus in brook trout)
(12): 1837 (lysolecithin solubilizing effect on extractability of tissues, in rainbow trout)
- Kiley, Charles Walter
J 28(1): 47 (erythropoiesis in *Trichogaster trichopterus*)

- Killifish, banded (*Fundulus diaphanus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Killifish, striped (*Fundulus majalis*)
J 28(8): 1208 ("hemagglutinogens")
(9): 1225 (cadmium toxicity tests)
- Kittelsen, Arne
J 28(12): 1918 (abnormalities in trout)
- Knight, William
S 1494 (growth & mortality estimates)
- Knox, D. F.
J 28(11): 1815 (dispenser for oxygen reagents)
- KNOX, George Alexander
J 28(10): 1437 (*Dodecaceria berkeleyi* n.sp.)
- Kohler, Allan Carl
J 28(9): 1285 (methylmercury in fish)
- Kokanee (*Oncorhynchus nerka* (kennerlyi)) (non-anadromous sockeye salmon) (see also Salmon, sockeye)
J 28(4): 573 (technique & computer programming for enumerating fry migrating through streams)
(12): 1857 (introduction into L. Huron; spawning)
- Kootenay Lake, B.C.
T 245 : 1 (mass mortality of mountain whitefish);
7 (disease in rainbow trout run)
- Kooyman, Albertus Hermanus
J 28(7): 1005 (walleye malate dehydrogenase)
- Korea
T 246 (bibliography of trawl fishery off N America Pac. coast)
- Kramer, Donald Emerson
T 220 (storage of Pac. salmon at sea)
- Kramer, Robert Henry
J 28(4): 587 (factors influencing rainbow trout metabolism)
- Kristiansen, Ulf Bo Gjerulff
T 210 (*G. B. Reed* groundfish cruise 70-2)
269 (*G. B. Reed* groundfish cruise 71-1)
- Kuhns, William Joseph
J 28(8): 1208 (killifish "hemagglutinogens")
- Kutty, Methil Narayanan
J 28(9): 1342 (technique for measurement of carbon dioxide in fish)
- Kwain, Wen-hwa
J 28(5): 771 (life history of L. Superior rainbow trout)
- L**
- Labrador (see also Newfoundland)
T 270 (Atl. salmon catches, 1956-69)
A 195 (fisheries)
- Labriifer balli* (see Flukes)
- Lacroix, Guy
J 28(8): 1205 (epifaunal collectors)
- Lactate (see also Enzymes; Metabolism; Physiology)
J 28(5): 625, 635 (levels in brook trout blood from handling & anesthetization)
(8): 1215 (changes in blood lactic acid concentration of alewives passing through a pool & weir fishway)
(11): 1745 (serum & muscle dehydrogenases in suckers)
- Ladders, fish (see Fishways)
- Ladysmith Harbour, B.C.
B 178 (raft-culturing of Pac. oyster)
- Lagenorhynchus obliquidens* (see Porpoise, Pacific white-sided)
- Lake... (see name of lake)
- Lakes (see also Eutrophication; Limnology; Pollution; also names of lakes)
J 28(2): entire issue (FRB Experimental Lakes Area program re biological productivity & eutrophication of 463 small NW Ont. lakes)
(3): 311 (crustacean plankton of 146 W Canadian alpine & subalpine lakes & ponds)
(11): 1763 (eutrophication of one of Experimental Lakes Area lakes by addition of phosphate & nitrate)
(12): 1883 (limnology of 51 on Manitoulin Is. (L. Huron))
- Lamellibranchs (see Pelecypoda)
- Laminaria* (see Seaweeds)
- Lamna nasus* (see Porbeagle)
- Lampetra lamottel* (see Lamprey, American brook)
tridentatus (see Lamprey, Pacific)
- Lamprey, American brook (*Lampetra lamottel*)
J 28(4): 616 (sizes of 5 giant, probably parasitic, females from upper Great Lakes, re average adult size of non-parasitic ordinary type)

- Lamprey, chestnut (*Ichthyomyzon castaneus*)
J 28(4): 616 (size re giant American brook lampreys, upper Great Lakes)
- Lamprey, Ohio (*Ichthyomyzon bdellium*)
J 28(4): 616 (size re giant American brook lampreys, upper Great Lakes)
- Lamprey, Pacific (*Entosphenus (Lampetra) tridentatus*)
T 221 (taken in B.C. groundfish surveys)
- Lamprey, sea (landlocked) (*Petromyzon marinus*)
J 28(1): 65 (effect on L. Superior lake trout populations)
(5): 771 (parasitism on rainbow trout, Batchawana Bay, L. Superior)
S 1484 (molecular structure of halogenated mononitrophenols re their toxicity to larvae)
1490 (history of invading Great Lakes, damage to fisheries, & controlling the infestation)
- Lamprey, sea (marine) (*Petromyzon marinus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Lamprey, silver (*Ichthyomyzon unicuspis*)
J 28(4): 616 (size re giant American brook lampreys, upper Great Lakes)
- Lance, American sand (*Ammodytes americanus*) (sand launce)
J 28(4): 601 (fatty acid composition of oils & phospholipids)
T 252 (distribution off southern N.S. coast)
260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
S 1591 (pristane & other hydrocarbons in commercial oil)
A 182 (ICNAF Canadian 1969 research summary)
- Lance, northern sand (*Ammodytes dubius*)
T 261 (bibliography for Gulf of St. Lawrence)
- Lance, Pacific sand (*Ammodytes hexapterus*) (sand launce)
T 221 (taken in B.C. groundfish surveys)
257 (taken in B.C. & U.S. Pac. coast commercial trawling, 1970)
- Lancetfish, scaled (*Paralepis coregonoides borealis*)
J 28(8): 1199 (as Atl. salmon feed in Davis Strait & Labrador Sea)
- Landings (see Catches; Fisheries)
- Lanternfish, glacier (*Bentho-sema glaciale*)
T 261 (bibliography for Gulf of St. Lawrence)
A 182 (ICNAF Canadian research, 1969)
- Lanternfish, Krøyer's (*Notoscopelus krøyeri*)
T 261 (bibliography for Gulf of St. Lawrence)
- Lanternfish, spotted (*Myctophum punctatum*)
T 261 (bibliography for Gulf of St. Lawrence)
- Lanternfishes (Pacific) (see also names of species)
T 221 (taken during B.C. groundfish surveys)
- Lantz, Andrew William
J 28(7): 1061 (method of drying freshwater fish)
- Lapi, Louis Antinino
J 28(10): 1583 (X-ray spectrometry)
- Laqueus californianus (Brachiopoda)
T 268 (in B.C. faunistic surveys since 1960)
- Larkin, Peter Anthony
J 28(6): 821 (gillnet selectivity on sockeye & pink Skeena R. salmon)
(10): 1493 (sockeye simulation studies)
- Larus argentatus (see Gull, herring)
- Larvae (see Development; also name of adult form of animal)
J 28(1): 73 (energetics & natural history of dipteran *Hedriodiscus truquii* in thermal springs)
B 176 (synopsis of literature to end of 1970 re larval forms in Canadian marine zooplankton; includes an index)
- Larvicides (see Insecticides; Piscicides)
- Lau, Yan Chee
J 28(7): 1015 (trout lysosomal lipase)
- Laubier, Lucien
J 28(10): 1483 (*Schroederella berkeleyi*, sp.n.)
- Launce, sand (see Lance)
- Lawler, George Herbert
T 165(F) (central Canada rainbow trout farming)
A 224 (parasites of coregonid fishes)
- Lawrie, Andrew Hampton
S 1490 (sea lamprey in Great Lakes)
- Laycock, Rosemary Anitra
J 28(3): 305 (haddock fillets bacteria)
S 1460 (spoilage of irradiated haddock)
- Lead derivatives
J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
S 1529 (distribution in L. Ontario)
- Lear, William Henry
J 28(3): 461 (record of Atl. menhaden from Northumberland Strait)
(8): 1199 (salmon specimens from Davis Strait & Labrador Sea)
T 270 (digest of Canadian Atl. salmon catch statistics)
A 190 (Greenland halibut)

- LeBrasseur, Robin John
A 188 (marine biology in Saanich Inlet)
211 (availability of food in marine food chain)
- Lecithins
J 28(12): 1837 (lysolecithin solubilizing effect on extractability of various rainbow trout tissues)
S 1474 (fatty acid composition in rainbow smelts)
- Lecithophyllum botryophorum* (see Flukes)
- Lee, Jong Sun
J 28(11): 1789 (interaction between paralytic shellfish poison and melanin)
- Lee, Pei Jen
T 209 (filing bibliographic references)
244 (multivariate analysis for fisheries biology)
250 (fish catch & pollution principle & operation)
- Leeches (Herudinea)
J 28(4): 543 (key to Canadian freshwater)
A 224 (parasitic to N American, USSR, & European coregonid fishes)
- Leggett, William Claude
J 28(8): 1167 (net avoidance behaviour in shad)
- Lenarz, William Henry
J 28(3): 446 (electronic processing of acoustical data for fishery research)
- Length (see also Age; Growth; Size; Weight)
J 28(4): 513 (successive Skeena R. sockeye salmon generations re egg weight & progeny size)
(6): 861 (feeding level effects on young sockeye salmon)
(7): 935 (frequency or range, of 20 Passamaquoddy Bay, N.B., fish communities participants)
(7): 971 (*Sagitta elegans* arrow worms, re growth & temperature, St. Margaret's Bay, N.S.)
(7): 1009 (re S Gulf of St. Lawrence seasonal herring stocks discreteness)
(9): 1309 (re age, white whale)
(10): 1621 (re age, northern rockfish)
T 213 (distribution, B.C. offshore herring)
232 (razor clams)
237 (re weight of Pac. ocean perch off B.C. in 1969)
250 (computer programming fish fork length data)
251 (re girth of Pac. ocean perch off B.C. in 1969)
259 (re age, B.C. rock sole)
260 (groundfish species, Scotian Shelf, from 1958-68 surveys)
S 1492 (tagged & commercially landed haddock, 1963-66)
- 1493 (Atl. cod, re changes in trawl net mesh sizes)
1494 (behaviour of growth & mortality estimates based on age-length keys)
1495 (frequencies, in Bay of Fundy immature herring populations)
1507 (conversion factors for haddock standard, extreme total & fork lengths)
- Lepeophtheirus* (parasitic copepods)
J 28(3): 323 (morphology & new nomenclature as parasites of ocean sunfish; world distribution of *L. nordmanni* & *L. hastatus*)
(8): 1143 (*L. salmonis* locomotory mechanisms)
- Lepidion* (morid fishes)
T 160 (*L. eques*, *L. lepidion*, *L. guntheri* & *L. schmidtii* meristic, morphometric, weight, feed, & parasites data)
- Lepidopsetta bilineata* (see Sole, rock)
- Lepisosteus osseus* (see Gar, longnose)
- Lepomis auritus* (see Sunfish, redbreast)
cyanellus (see Sunfish, green)
gibbosus (see Pumpkinseed)
macrochirus (see Bluegill)
- Leptocottus armatus* (see Sculpin, Pacific staghorn)
- Lernaeopodidae (see also Copepoda)
S 1496 (new parasitic genus & species, *Proclavellodes pillaii*, from S India fish)
1501 (new parasitic species, *Haemobaphes intermedius*; also description of *H. diceraus*, from Strait of Georgia)
1566 (new parasitic species, *Lernanthropus togatus*, on gills of marine Kenyan fish *Gaterin*)
- Lesion (see Pathology)
- Lethal limits (see also Insecticides; Pesticides; Piscicides; Pollution; Toxicants; also factors influencing; e.g., Oxygen, dissolved; Respiration; Salinity, reactions to; Temperature, reactions to)
B 177 (paralytic shellfish toxin to man, mice, domestic animals & birds)
S 1590 : 522 (of temperature to various fishes: review)
- Leucichthys* (see Coregonus)
- Leukemia (see Blood)
- Levenstein, Raisa Yakovlevna
J 28(10): 1429 (*Macellicephaloides berkeleyi* n.sp.)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Li, Ming Fang
J 28(1): 104 (skin lesions of rainbow trout)
- Lice, aquatic (see Amphipoda; Copepoda; Parasites)
- Life history (see also aspects of; also names of organisms)
J 28(1): 73 (*Hedriodiscus truquii* diptera in thermal springs)
(5): 771 (rainbow trout, Batchawana Bay, L. Superior)
(7): 971 (*Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)
T 231 (arctic char in a small arctic lake)
S 1501 (*Haemobaphes* parasitic copepods)
A 184 (harp & ringed seals)
- Life span
J 28(10): 1573 (re animal production-biomass ratio)
- Light, polarized (see Light, reactions to; Migration)
- Light, production of (see Bioluminescence)
- Light, reactions to (see also Darkness; Diel habits; Radiation; Vision)
J 28(4): 587 (re wild vs. hatchery rainbow trout metabolism)
(6): 919 (prespawning brook sticklebacks)
(9): 1303 effects of oxygen depletion & carbon dioxide accumulation on walleye photic behaviour
(9): 1352 (increased predation of torrent sculpin on moonlight nights)
(9): 1319 (polarized; perception by yearling sockeye salmon, re migration)
(11): 1749, 1757 (photoperiods effect on young sockeye salmon scale growth after starvation periods)
S 1486 (newly hatched crayfish)
1557 (re crayfish ovarian maturation & egg laying)
- Liley, Nicholas Robin
S 1535 (sexual behaviour of female guppy)
- Limanda aspera* (see Sole, yellowfin)
ferruginea (see Flounder, yellowtail)
yokohamae (see Dab, mud)
- Limmocalanus* (see Copepoda)
- Limnodrilus hoffmeisteri* (tubificid oligochaete)
J 28(3): 335 (survival of bacteria during ingestion by, in Toronto Harbour, Ont., sediments)
- Limnology (see also Benthos; Eutrophication; Lakes; Pollution; Ponds; Sediments; also names of lakes)
J 28(1): 102 (plotting bathythermograph transect data on a computer printer)
(2): entire issue (FRB Experimental Lakes Area studies of many small NW Ont. lakes)
(5): 765 (rapid ammonium ion determination method for waters)
- (11): 1683, 1699, 1715 (Bay of Quinte & other L. Ontario bays)
(12): 1883 (physical & chemical aspects of 51 Manitoulin Is. (L. Huron) lakes)
T 165(F) (re rainbow trout farming in central Canada)
231 (Keyhole L., Canadian Arctic, re arctic char potential production)
MSP 13(F) (summary of FRB investigations in Canadian Arctic)
S 1532, 1533 (North Boulder Creek, Colorado, re invertebrates in this high mountain area)
- Lindsey, Casimir Charles
J 28(9): 1235 (medaka vertebral count re egg size)
- Lingcod (*Ophiodon elongatus*)
T 216, 257 (catches during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
221 (catches during B.C. groundfish surveys)
246 (bibliography)
S 1523 (muscle purine & pyrimidine nucleoside phosphorylases)
1524 (muscle guanine deaminase mechanism & specificity)
- Liopsetta putnami* (see Flounder, smooth)
- Liparis atlanticus* (see Seasnail (Atlantic))
cyclostigma (see Seasnail, polka-dot)
koefoedi (see Seasnail, gelatinous)
liparis (see Seasnail, striped)
tunicatus (see Seasnail, Greenland)
- Lipases (see Enzymes)
- Lipids (see also Acids, fatty; Composition, chemical; Oils and fats; Phospholipids)
J 28(1): 7 (seasonal changes in total, of freshwater tricolad flatworm)
(4): 601 (fatty acids of sand lance)
(5): 776 (content of *Pontoporeia affinis* amphipod, Cayuga L., N.Y.)
S 1461 (esters fatty acid structure influence on pancreatic lipase activity)
1474 (fatty acid composition in rainbow smelts)
1475 (confusion between C₁₈ & C₂₀ fatty acids in analysis of water-plant seed lipids)
1564 (*trans*-6-hexadecenoic acid & corresponding alcohol in sea urchin *Metridium dianthus*; also fatty acids composition of lipids)
1572 (saturated & isoprenoid fatty acids distribution in periwinkle, Atl. oyster & quahaug)
- Lipps, Jere Henry
S 1587 (pleistocene paleoecology & biostratigraphy, Santa Barbara Is., Calif.)
- Lister, David Brent
J 28(5): 647 (pink salmon in Qualicum R.)
- Lists of organisms (see Benthos; Checklists; Fauna; Fishes, lists of; Invertebrates; also names of some classifications of organisms)

Lists of publications (see Publications, lists of; Publications and Reports, FRB)

Litchfield, Carter
S 1514 (lipids of Amazon R. dolphins)

Lithium derivatives

J 28(2): 277 (in sediments of 4 small NW Ont. lakes)

Lithodes (crabs)

J 28(10): 1527 (*L. couesi* first record off B.C.)

Littorina littorea (see Periwinkle, common)

Liver (see also Liver Oils)

J 28(1): 47 (hemosiderin bodies re erythropoiesis in blue gourami)

(1): 112 (histology of cutthroat trout with leukemia condition)

(4): 485 (histological effects of hormones & cortisol on gonadectomized adult sockeye salmon)

(6): 843 (zinc level in rat, when fed P.E.I. oysters)

(7): 1053 (genic polymorphism of tetrazolium oxidase in bluefin tuna)

(7): 1064 (vs. feces re presence of pancreatic necrosis virus in brook trout)

(11): 1793 (see T 229 below)

(12): 1837 (lysocleithin solubilizing effect on extractability of tissues, in rainbow trout)

T 229 (feeding rats raw or partially hydrogenated Atl. herring oil re fat deposition in)

S 1458 (glycosyl transferase re glycogen structure in rainbow trout liver)

Liver oils

S 1591 (pristane & other hydrocarbons in commercial Canadian Atl. cod & Pac. spiny dogfish)

Lobster, American (*Homarus americanus*)

J 28(1): 15 (esterase isozymes polymorphisms)

(1): 59 (DDT residues in N.B.)

(5): 793 (yellow phosphorus accumulation in various tissues)

(6): 879 (enolase enzyme isolation & comparison with other enolases re phylogeny)

(7): 1062 (sensor apparatus for detecting presence in burrow)

(9): 1285 (methylmercury in, off N.S.)

(11): 1733 (production potential re seaweed production & feed, St. Margaret's Bay, N.S.)

CHN 41, 42 (nature & control of gaffkemia disease)

T 217 (pollution from petroleum oil spills)

235 (agonistic behaviour)

S 1527 (muscle sterols)

1569 (determination of residual fuel oil contamination in abdominal muscle, claw muscle, gut, & stomach)

nation in abdominal muscle, claw muscle, gut, & stomach)

A 180 (gaffkemia disease cause & pathology in)

194, 195 (Nfld. & Labrador fishery)

200 (mercury contamination)

213 & 213(F) (artificial rearing of)

Lobster, spiny (*Palinurus argus*)

S 1527 (muscle sterols)

"Lobster disease" (see Gaffkemia)

Locomotion

J 28(7): 1062 (sensor apparatus for detecting lobster in a burrow)

(8): 1143 (mechanisms of 2 parasitic copepods)

S 1551 (development in postlarval *Macoma balthica* clam)

Locomotor responses (see Light, responses to; Light, reactions to; Odour and reactions to; Salinity, reactions to; Swimming; Temperature, reactions to; Vision)

Loligo opalescens (see Squid, longfinned (Pacific))

pearl (see Squid, longfinned (Atlantic))

Long Bay; Long Harbour, Nfld. (see Placentia Bay, Nfld.)

Long Beach, Vancouver Island, B.C.

T 232 (razor clam breeding & growth)

Lophius americanus (see Goosefish)

Lopholithodes mandtii (see Crab, box)

Loring, Douglas Howard

S 1511 (European flints on N American coast)

A 199 (marine geological investigations in Gulf of St. Lawrence)

Lota lota (see Burbot)

Loucks, Ronald Harold

S 1482 (study of eutrophicated marine basin)

Love, John

S 1522 (optical detection pressure apparatus)

Luhning, Charles William

J 28(1): 113 (tricaine methanesulfonate in fish muscle)

Luminescence (see Bioluminescence)

Lumpenus fabricii (see Eelblenny, slender)

lumpretaeformis (see Snakeblenny)

maculatus (see Shanny, daubed)

medius (see Eelblenny, stout)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Lumpfish (*Cyclopterus lumpus*)
 J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 (9): 1285 (methylmercury in, N.S. banks)
 T 261 (bibliography for Gulf of St. Lawrence)
- Lumpsucker, Atlantic spiny (*Eumicrotremus spinosus*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Lunatia heros* (see Clam drill, greater)
- Lutetium
 A 232 (¹⁷⁷Lu as radioactive marine pollutant)
- Lux, Fred Edward
 S 1492 (growth of American plaice)
- Lycenchelys paxillus* (see Wolf-eel (Atlantic))
- Lycodes atlanticus* (see Eelpouts (Atlantic))
esmarki (see Eelpouts (Atlantic))
lavalaei (see Eelpout, Newfoundland)
pallidus (see Eelpout, pale)
reticulatus (see Eelpout, arctic)
seminudus (see Eelpouts (Atlantic))
turneri (see Eelpout, polar)
vahlili (see Eelpout, Vahl's)
- Lycodopsis pacifica* (see Eelpout, blackbelly)
- Lymnaea* (see Snails, freshwater))
- Lymphocystis viral disease (see Disease)
- Lyopsetta exilis* (see Sole, slender)
- Lysolecithin
 J 28(12): 1837 (solubilizing effect on extractability of various rainbow trout tissues)
- M**
- MacAskie, Ian Bruce
 J 28(4): 620 (range extension for squid)
 A 209 (sea otter transplant to B.C.)
- MacCrimmon, Hugh Ross
 J 28(3): 452 (world distribution of brook trout, further observations)
 (5): 663 (rainbow trout world range)
- Macdonaldia challengerii* (see Eel, deepsea spiny)
- Macellicephaloides berkeleyi* (aphroditid polychaete)
 J 28(10): 1429 (new species, from Aleutian trench)
- MacKelvie, Robin Maxwell
 J 28(1): 100 (removal of embryos from fish eggs)
- Mackerel, Atlantic (*Scomber scombrus*)
 J 28(1): 59 (DDT residues in N.B.)
- (7): 947 (blood pathway effects on blood-pressure drop in gills)
 T 261 (bibliography for Gulf of St. Lawrence)
 A 182 (ICNAF Canadian 1969 research summary)
- Mackerel, chub (*Scomber japonicus*) (*S. colias*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Mackie, George Owen
 J 28(10): 1595 (studies on evolution of Chondrophora)
- Mackie, Gerald Lloyd
 J 28(9): 1322 (quantitative sampler for aquatic phytomacrofauna)
- MacLean, James Alexander
 J 28(6): 919 (temperature effects on prespawning Man. sticklebacks)
- MacNeill, Ian Bruce
 J 28(7): 1035 (fish count sequences)
- Macoma balthica* (see Clams)
- Macrophytes, aquatic (see Eelgrass; Seaweeds)
- Macrourus berglas* (see Grenadier, roughhead)
rupestris (see Grenadier)
- Macrozoarces americanus* (see Pout, ocean)
- Mactra solidissima* (see Clam, bar)
- Madden, Jane Anne
 J 28(5): 625 (handling & anesthetization effects on brook trout)
 (5): 635 (brook trout variations re surgery)
- Magelona* (polychaetes)
 J 28(10): 1445 (*M. berkeleyi*: new species, Puget Sound; *M. longicornis* redescription; other recently described species)
- Magnesium derivatives
 J 23(2): 171, 203 (in waters of many small NW Ont. lakes)
 (2): 277 (in sediments of 16 small NW Ont. lakes)
 (5): 625, 635 (level changes in brook trout after handling, anesthetization, & surgery)
 S 1512 (isopiestic measurements on ternary system solutions re MgSO₄ activity coefficient)
- Makaira audax* (see Marlin, striped)
nigricans (see Marlin, blue)
- Mako (see Mako, shortfin)
- Mako, shortfin (*Isurus oxyrinchus*) (mako; mako shark)
 A 182 (ICNAF Canadian 1969 research summary)

- Malacoceros indicus* (spionid polychaete)
J 28(10): 1455 (redescription of)
- Malacology (see Mollusca)
- Malate (see also Enzymes)
J 28(7): 1005 (dehydrogenase isozyme multiplicity in walleye skeletal muscle, re genetics)
- Malformation (see Abnormality)
- Mallotus villosus* (see Capelin (Atlantic); Capelin (Pacific))
- Mammals (general)
A 229 (aging by teeth & bone layered structure: book review)
- Mammals, marine (see Beluga; Dolphin; Narwhal; Porpoise; Seal; Whale)
- Man
B 177 (susceptibility to paralytic shellfish poisoning)
A 230 (ecosystems, pollution, etc., re a northern environment as sources of food)
232 (evaluation of radiation exposure from consumption of radioactive pollutants in marine foods)
- Management, fisheries (see also names of International Commissions)
J 28(10): 1493 (re Adams R. sockeye salmon abundance fluctuations)
B 175 (economic study of Maritime Provinces oyster fishery)
177 (re paralytic shellfish toxicity in E Canada)
T 222 (genetics & mariculture re managed fishery populations)
246 (bibliography, N America Pac. coast trawl fisheries)
256 (Georges Bank scallop fishery suggestions)
A 183 (re utilization of ocean resources & oceanography)
192 (N Atl. salmon multilateral)
230 (of fisheries & other human food resources from a northern environment, re ecosystems & pollution)
- Manganese derivatives
J 28(2): 277 (in sediments of 16 small NW Ont. lakes)
(5): 786 (in dressed Canadian fishes from industrial area lakes)
(6): 843 (level in P.E.I. Oysters)
S 1529 (distribution in L. Ontario)
A 232 (⁵⁴Mn as radioactive marine pollutant)
- Manion, Patrick James
J 28(4): 616 (giant American brook lampreys in upper Great Lakes)
- Manitoba (see also Moose Lake; Winnipeg, Lake; also other localities and bodies of water)
A 200 (mercury contamination of fishes in lakes & Hudson Bay)
- Manitoulin Island, Lake Huron
J 28(12): 1883 (physical & chemical limnological aspects of 51 lakes)
- Mann, John Howard
T 220, 242 (storage of Pac. salmon at sea)
- Mann, Kenneth Henry
J 28(5): 778 (relation between stipe length, etc. of *Laminaria*)
(11): 1733 (productivity of seaweed-lobster communities)
S 1482 (study of eutrophicated marine basin)
A 223 (combating pollution on Canada's E coast)
- Manohar, Shiriram Vajudeo
J 28(9): 1325 (postmortem changes in fish muscle)
- Mansfield, Arthur Walter
J 28(12): 1873 (bowhead whale in Canadian arctic waters)
S 1573 (harbour seal in Thlewiaza R., N.W.T.)
A 184 (population dynamics & exploitation of some arctic seals)
228 (review of book on Jakob Danielsen's Greenlandic paintings)
- Mantle
B 177 (of shellfishes, re paralytic shellfish toxicity)
S 1551 (development in postlarval *Macoma balthica* clam)
- Marcy, Barton C., Jr.
J 28(7): 1057 (survival of fish in nuclear power plant discharge water)
- Margaree Harbour, N.S.
S 1539 (capacity to accept pollutants)
- Margarine
T 249 (detection & estimation of marine oil adulteration)
- Margolis, Leo
J 28(10): 1385 (larval helminths in polychaetes)
S 1487 (nematode diseases of marine fishes)
1499 (redescription of syntypes of *Caligus rapax*)
- Maria (see Burbot)

- Mariculture (*see also* Culture; Feed; Hatcheries; Management; Oyster; Rations)
T 222 (re genetics)
- Marion Lake, B.C.
J 28(1): 49 (comparison of 2 salamander populations)
(5): 711 (energy flow & secondary production of 2 amphipod species)
(9): 1259 (segregation between adult cutthroat & Dolly Varden trout)
- Maritime Provinces, Canada (*see also* New Brunswick; Nova Scotia; Prince Edward Island; *also* localities and bodies of water)
B 175 (economic study of oyster industry)
- Markert, John Richard
J 28(12): 1853 (proteins in salmon eggs)
S 1521 (egg proteins of Pac. salmon)
1584 (soluble fractions of Pac. salmon eggs)
- Marketing
B 175 (re economic study of Maritime Provinces oyster industry)
- Marking methods, returns, and interpretation (*see also* Migration; Tagging)
J 28(3): 351 (Miramichi R., N.B., salmon to ascertain relative utilization rates by angling vs. Maritime commercial fisheries)
S 1581 (harp seal)
A 184 (harp seal)
- Marlin, blue (*Makaira nigricans*)
T 272 (halogenated hydrocarbons residues in)
- Marlin, striped (*Tetrapturus (Makaira) audax*)
J 28(7): 947 (blood pathway effects on blood-pressure drop in gills)
- Marlin-spike (*Nezumia bairdi*)
T 261 (bibliography for Gulf of St. Lawrence)
- Marshall, Kenneth Eric
T 151 (bibliography of coregonid fishes)
176 (bibliography of lake trout 1929-69)
209 (filing bibliographic references)
- Marshall, Nelson
J 28(5): 769 (simple reliable method for assaying ^{14}C -labelled benthic microflora)
- Mascaluk, Danny Mitchell
T 254 (phosphorus levels in Nfld. water)
- Mason, John Christopher
S 1465 (copulatory behaviour of crayfish)
1468 (egg-laying in N American crayfish)
1486 (crayfish maternal-offspring behaviour)
- Masset, Queen Charlotte Islands, B.C.
T 232 (razor clam breeding & growth)
- Mathematical table
A 189 (exponentials (e^{-3} to e^3))
- Mathematical treatment of data (*see also* Computer programming; Models, mathematical)
J 28(2): 225 (canonical multiple variant analysis of periphyton chemical composition)
(3): 369 (canonical multiple discrimination analysis of X-ray fluorescence spectroscopy for salmonids elemental chemical composition)
(7): 1035 (quick analysis of digital echo fish count sequences)
(9): 1275, 1293 (estimating fish abundance by voltage-integrating fish echo sounder)
(10): 1666 (Derzhavin's population analysis statistical method)
T 200 (extension of J 28(3) reference above)
212 (computer programming for multiple discrimination analysis of X-ray spectrographic data)
244 (multivariate analysis for fisheries biology)
248 (planktonic herbivores grazing re productivity studies)
264 (fluid mechanics of netting & low-solidity screens)
S 1494 (behaviour of growth & mortality estimates based on age-length keys)
1500 (re physics of bubble formation from decomposition of marine sediments)
1582 (Derzhavin's method)
1583 (comparison of 2 reproduction curves)
A 189 (assessment methods for freshwater fish production)
- Mathias, Jack Anthony
J 28(5): 711 (Marion L. amphipod energetics)
- Mating (*see also* Reproduction)
J 28(8): 1198 (supernumerary copulatory organs in *Dugesia tigrina* turbellarian)
S 1465 (*Pacifastacus trowbridgii* crayfish copulatory behaviour)
1555 (claw-shuddering behaviour of green shore crab to escape male-male attempted mating)
- Matter, particulate (*see also* Productivity, primary)
J 28(2): 277 (carbon content, in sediments of 16 small NW Ont. lakes)
(2): 295 (carbon content of sediments re differences & similarities among small NW Ont. lakes)
(6): 911 (carbon & nitrogen: ratios, also seasonal & depth distributions, Chesapeake Bay, Md.)
(11): 1783 (^{65}Zn vs. Zn distribution in experimental marine ecosystem)
S 1485 (importance & general implications of organic, re plankton feed, particularly of filter-feeding copepods)
1503 (occurrence & formation of, in sea water)
1504 (continuous nephelometric measurement of seawater turbidity)

- 1537 (comparison of grade scales; proposed universal grade scale)
 A 211 (size, re feed availability to different trophic levels in marine feed chain)
- Maturity; Maturation
 J 28(3): 417 (Pacific ocean perch)
 (4): 477, 485 (effects of hormones & cortisol on gonadectomized adult sockeye salmon)
 (4): 553 (spring vs. autumn spawning, SW Nfld. herring)
 (7): 1051 (white seaperch, Tomales Bay, Calif.)
 (9): 1309 (white whale, Cumberland Sound, Baffin Is., N.W.T.)
 (10): 1621 (northern rockfish)
 T 250 (computer programming fish maturity data)
 A 214 (delaying or accelerating sexual, by hormones, to allow greater growth in fish farming, or to hasten cross-breeding tests)
- Mauck, Wilbur Leon
 J 28(7): 957 (northern pike predation)
- Maxwell, James Rankin
 S 1528 (geological fate of chlorophyll)
- May, Arthur William
 J 28(8): 1199 (salmon specimens from Davis Strait and Labrador Sea)
 T 270 (digest of Canadian Atl. salmon catch statistics)
 A 192 (marine fisheries for Atl. salmon)
 195 (Labrador fisheries)
 202 (salmon exploited at sea)
 205 (problems relative to W Greenland salmon)
- Mayflies (Ephemeroptera) (see also Insects, aquatic)
 J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
 (5): 705 (biological magnification & degradation of insecticides by)
 (6): 849 (samplings from shallow stream beds)
 T 258 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
 S 1532, 1533 (of a high Colorado mountain creek)
- McAllister, Carey Douglas
 T 248 (continuous grazing by planktonic herbivores)
 S 1513 (marine production of zooplankton and phytoplankton)
- McArn, Glynn Edward
 J 28(9): 1241 (flounder skin tumors)
- McBride, John Raymond
 J 28(4): 477 (gonadal hormones effects on sockeye organs)
 (4): 485 (effects of hormones on sockeye)
- McCarraher, Donald Bruce
 J 28(11): 1811 (survival of fish in alkaline eutrophic waters)
- McCart, Peter
 J 28(1): 115 (meristic differences in *Salvelinus alpinus*)
 (5): 749 (variation in scale counts of arctic grayling)
- McCauley, Robert William
 J 28(11): 1801 (temperature selection of trout)
- McCormick, J. Howard
 J 28(6): 924 (temperature requirements for larval ciscos)
- McCosker, John Edward
 J 28(11): 1809 (lymphocystis disease in Pac. fish)
- McCrary, Jerry Alden
 J 28(1): 98 (differentiating between some female Pandalidae)
- McDermott, Lawrence Alfred
 J 28(9): 1350 (infectious pancreatic necrosis of salmonids)
- McKim, James Montgomery
 J 28(5): 655 (trout re toxicity of copper)
- McKone, Warren Douglas
 J 28(1): 110 (salmon evacuated from mountain whitefish stomach)
- McLain, Douglas R.
 J 28(1): 102 (baththermograph transect data plotting)
- McSheffrey, Hugh Michael
 J 28(10): 1583 (X-ray spectrometry)
- Meal, fish (see Crabmeal; Fish protein concentrate; Fishmeal; Shrimpmeal)
- Medaka (*Oryzias latipes*)
 J 28(9): 1235 (vertebral count re egg size)
- Medcof, John Carl
 B 177 (E Canada paralytic shellfish poisoning)
 A 221 (20-million-year-old geological "catch")
- Melanin
 J 28(11): 1789 (distribution in butter clam re retention of paralytic shellfish toxin)
- Melanogrammus aeglefinus* (see Haddock)
- Melanostigma atlanticum* (see Pout, Atlantic soft)

- Melosira*
J 28(2): 265 (dominant diatoms in many small NW Ont. lakes)
- Melville, Joanne Megan
J 28(11): 1817 (phosphatase activity in *Clostridium botulinum* spores & cells)
- Menhaden, Atlantic (*Brevoortia tyrannus*)
J 28(3): 461 (range extension some 100 miles NE to Northumberland Strait)
T 261 (bibliography for Gulf of St. Lawrence)
- Menidia menidia* (see Silverside, Atlantic)
- Méranger, Jean Charles
J 28(6): 843 (zinc retention in young rats fed increasing levels of high-zinc oysters)
- Mercenaria mercenaria* (see Quahaug, northern)
- Mercer, Malcolm Clarence
T 199 (A. T. Cameron otter-trawl Atl. cruise)
S 1544(F) (northern limit of a squid)
1546 (cephalopod resources and fisheries)
- Mercury derivatives
J 28(5): 786 (in dressed Canadian fishes from industrial area fishes)
(9): 1285 (methylmercury in freshwater & marine fishes, N.B., Bay of Fundy, & N.S. Banks; also in rain & snow)
(11): 1807 (sulphide: mobilization from aquatic sediments into fish)
S 1534 (assay procedure for fish by flameless atomic absorption spectrophotometry)
A 178 (details of procedure in S 1534 above)
200 (sources & effects of contamination in Canadian fishes)
201 (in Great Lakes fishes used as human food)
- Meristic characteristics (see also Morphology; Speciation; Species, new; also Length; Size; Weight; also names of organisms)
J 28(1): 115 (anadromous vs. freshwater-resident arctic char)
(3): 427 (tube-snouts re sticklebacks osteology & phylogeny)
(4): 465 (lake char intraspecific variations & postglacial distribution)
(4): 553 (differences between spring- & autumn-spawning SW Nfld. herring)
(7): 987 (re systematics & evolution of western N America *Salmo* species & subspecies)
(7): 1009 (re discreteness of Gulf of St. Lawrence seasonal herring stocks)
(10): 1621 (northern rockfish)
T 160 (of 4 *Lepidion* morid fish species)
192 (greenland turbot)
237 (mud dab)
A 193 (Atl. & Pac. capelin)
- Merluccius bilinearis* (see Hake, silver)
productus (see Hake, Pacific)
- Meromyxis (see also Limnology)
J 28(2): 265 (in 2 small NW Ont. lakes indicated by diatoms, ratio in sediments)
- Mesh size (see Nets)
- Mesocyclops* (see Copepoda)
- Mesodesma arctatum* (see Clam, arctic wedge)
- Mesodinium* (ciliates) (see also *Cyclotrichium*)
J 28(3): 391 (*M. rubrum* "incomplete symbionts"; ultrastructure; taxonomy; key to *M. rubrum*, *M. acarus*, & *M. pulex*)
- Mesotrophy
J 28(2): 265 (of lakes indicated by diatom species in sediments)
- Messieh, Shoukry Naseef
J 28(7): 1009 (Atl. herring populations)
S 1464 (use of otoliths for aging herring)
1495 (immature Bay of Fundy herring)
- Metabolism (see also Activity; Bioenergetics; Stress; also names of metabolic functions)
J 28(3): 409 (sockeye salmon feed intake)
(3): 449 (bluegill sunfish protein consumption & nitrogen excretion)
(4): 587 (factors influencing active & standard, of wild vs. hatchery rainbow trout)
(6): 801, 809, 815 (fish growth efficiency re rations & activity)
(10): 1635 (of young sockeye salmon re nature of diet)
(11): 1715 (benthos macroinvertebrates, L. Ontario bays)
(12): 1899 (stresses caused by formalin disinfection of young salmonids)
S 1497, 1498 (of putrescine by mycobacteria isolated from fish)
1590 : 534 (of fishes re environmental temperature acclimation: review)
A 197 (& biological production in freshwater fishes: review)
212 (energy cost of living, for fish: review)
222 (pollutants effects on Atl. salmon & brook trout)
232 (effects of radioactive pollutants in marine environment)
- Metamorphism (see Development; also names of organisms)
- Metavermilia* (serpulid Polychaeta)
J 28(10): 1373 (revision of genus; 3 new species: *M. annobonensis*, *M. taenia*, *M. nates*; new form of parasite on gills of *M. nates*)
- Meteorology (see Climate; Precipitation)

Methodology

- T 249 (detecting & measuring marine oil adulteration of margarine & cooking fats)

Metridium dianthus (see Sea anemones)

Metroka, Craig Elliot

- J 28(8): 1208 (killifish "hemagglutinogens")

Mettrick, David Francis

- J 28(1): 7 (chemical composition of *Dugesia tigrina*)
(8): 1198 (abnormal sexual organs in fish)

Mice

- B 177 (re paralytic shellfish toxicity assaying)

Michalik, Paula Annette

- J 28(12): 1912 (fuel oil concentration in Chedabucto Bay)

Michigan, Lake (see also Great Lakes)

- J 28(4): 616 (size of giant brook lampreys re average adult size)

Micrococcus (see Bacteria)

Microgadus proximus (see Tomcod, Pacific)

tomcod (see Tomcod, Atlantic)

Micropterus dolomieu (see Bass, smallmouth)

salmoides (see Bass, largemouth)

Microstomus pacificus (see Sole, Dover)

Midshipman, northern (see Midshipman, plainfin)

Midshipman, plainfin (*Porichthys notatus*) (northern midshipman)

- T 257 (taken in 1970 B.C. trawl fishery)

Migration (see also Behaviour; Distribution; Homing; Marking; Spawning; Tagging; Tracking)

- J 28(1): 49 (salamanders in Marion L., B.C.)

- (3): 443 (computer programming for G. M. Jolly's stochastic model for capture-recapture)

- (4): 573 (enumerating kokanee fry in streams)

- (6): 919 (temperature & light effects on pre-spawning brook sticklebacks)

- (8): 1133 (adult & juvenile walleye between L. Huron & L. Erie)

- (9): 1345 (of carp through brackish B.C. coastal waters)

- (9): 1319 (polarized light possibly aids yearling sockeye salmon seaward)

- T 204 (male queen crabs, Gaspé region of Gulf of St. Lawrence)

- S 1581 (harp seal)

- A 184 (harp seal)

- 212 (energy requirements for fish when migrating: review)

Miles, Harry McCauley

- J 28(5): 625 (handling & anesthetization effects on brook trout)

- (5): 635 (brook trout variations re surgery)

Miller, Douglas Colenso

- T 213 (B.C. offshore herring survey, 1969-70)

Miller, Robert Joseph

- J 28(11): 1733 (productivity of seaweed-lobster communities)

Millikan, Alan Eugene

- J 28(9): 1275 (estimation of hake population by echo integrator)

Milt (see Sperm; Testes)

Mineral constituents of natural waters (see names of lakes, names of chemical elements; also Composition, chemical; Limnology; Oceanography; Waters, natural)

Mineral content; Ash (see Composition, chemical)

Mineralogy (see also names of chemical elements)

- J 28(2): 139, 277 (re limnology of many small NW Ont. lakes)

Mining effluents (see Copper; Pollution; Zinc)

Minkley, Bernard George

- T 211 (Ocean Station P oceanographic observations)

Minnow, bluntnose (*Pimephales notatus*)

- J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)

Minnow, fathead (*Pimephales promelas*)

- J 28(7): 957 (vulnerability to northern pike predation)

- (8): 1107 (mathematical model of effects of pollutant superimposed mortality on populations)

- (8): 1119 (chronic effects of low dissolved oxygen concentrations)

- (11): 1811 (alkali tolerance in eutrophic Nebraska lakes & ponds)

Minnow, sheepshead (*Cyprinodon variegatus*)

- J 28(9): 1225 (cadmium toxicity tests)

Miramichi and Miramichi River, N.B.

- J 28(1): 59 (DDT residues in marine fishes & shellfishes)

- (3): 351 (relative utilization rates of Atl. salmon by local sport fishery vs. Maritime commercial fisheries)
- T 202 (diatoms, and their use as indicators of heavy metal pollution)
- 226 (1969 fish mortalities in NW branch)
- S 1553 (mining effluent effect on vascular plants of NW)
- Mitchell, Edward Dick, Jr.
S 1574 (fin whale nasal structure)
1587 (pleistocene paleoecology and biostratigraphy, Santa Barbara Is., Calif.)
- Models, mathematical (see also Mathematical treatment of data)
J 28(3): 443 (computer programming of G. M. Jolly's capture-recapture stochastic model)
(6): 801, 809, 815 (fish growth efficiency from rations)
(7): 971 (empirical, for *Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)
(8): 1107 (for effects of pollutant superimposed mortality in fathead minnow populations)
(8): 1211 (advantages & limitations re fishery catch & effort)
(10): 1573 (production-biomass ratio re animal cohorts & populations)
(10): 1493 (re simulation of Adams R. sockeye salmon abundance fluctuations)
(10): 1503 (pink & chum salmon fry size re predation by coho salmon)
- T 248 (re nocturnal vs. continuous grazing by planktonic herbivores re marine productivity studies)
- S 1513 (similar to T 248 above)
- Modiolus dimissus* (see Mussel, ribbed)
modiolus (see Mussel, red)
- Mohamed, Mohideen Peer
J 28(9): 1342 (technique for measurement of carbon dioxide in fish)
- Moisture content (see Composition, chemical)
- Mola mola* (see Sunfish, ocean)
- Mollusca (see also subclassifications and names of species)
J 28(1): 35 (differences upstream & downstream of a dammed Ont. lake)
(6): 849 (samplings from shallow stream bed)
(6): 928 (in feed of tidepool & fluffy sculpins)
S 1470 (distributional checklist of B.C. marine, based on surveys since 1950)
1587 (fossil, re Pleistocene paleoecology of Santa Barbara Is., Calif.)
- Molybdenum derivatives
S 1529 (distribution in L. Ontario)
- Monkfish (see Goosefish)
- Monochrysis lutheri* (see Chrysophyceae)
- Monodon monoceros* (see Narwhal)
- Monogenea (see Flukes)
- Moon shell (see Clam drill, greater)
- Moonlight (see Light, reactions to)
- Moose, Paul Henry
J 28(9): 1293 (abundance estimate variance)
- Moose Lake, Man.
J 28(5): 786 (heavy-metal concentrations in dressed lake whitefish & northern pike)
- Moravec, F.
J 28(10): 1645 (N and Central American species of *Rhabdochona*)
- Moridae (see *Lepidion*)
- Morone americanus* (see Perch, white)
chrysops (see Bass, white)
saxatilis (see Bass, striped)
- Morphogenesis (see also Morphology)
S 1589 (*Dinoasteromonas* flagellates)
- Morphology; Morphometry (biological) (see also Cytology; Histology; Length; Meristic characteristics; Size; Species, new; also names of organisms, organs, & tissues)
J 28(1): 23 (re taxonomic status of adult male *Calanus finmarchicus* & *C. glacialis*)
(1): 31 (cestode & trematodes in N Atl. swordfish)
(1): 73 (thermal springs dipteran herbivore *Hedriodiscus truquii*)
(1): 98 (sternal spines re female shrimps spawning history)
(3): 323 (*Lepeophtheirus* caligid copepod species parasitic to ocean sunfish)
(3): 427 (osteology re tube-snouts & sticklebacks phylogeny)
(4): 465 (lake char re intraspecific variations & postglacial distribution)
(4): 517 (*Vibrio anguillarum* bacterium)
(4): 543 (Canadian freshwater leeches: in key)
(5): 767 (new trematode species, *Labrifer balli*)
(5): 771 (rainbow trout morphometry, L. Superior)
(8): 1143 (of parasitic copepods locomotory parts)
(10): 1373, 1437, 1393, 1483, 1455, 1429, 1469, 1407, 1445 (various current and new polychaete species)
(10): 1527 (3 new hermit crab species, B.C.)
(10): 1563 (2 new *Holobomolochus* parasitic copepod species)

- (10): 1621 (northern rockfish)
 (10): 1615 (new caridean shrimp species, *Eualus berkeleyorum*)
 (10): 1645 (7 *Rhabdochona* parasitic nematodes, including a new species)
 (11): 1796 (two unusual Pac. gonatid squids of uncertain genus)
 T 160 (of 4 *Lepidion* morid fish species)
 S 1483 (variation in *Lecithophyllum botryophorum* trematode)
 1488 (new genus & species of dinoflagellates from Canadian arctic lakes)
 1496 (new genus & species of copepod from S India)
 1499 (*Caligus rapax* syntypes re taxonomy)
 1501 (*Haemobaphes intermedius* & *H. diceraus* parasitic copepods)
 1533 (chironomids of a high mountain brook, Colorado)
 1536 (deformed chironomids larvae)
 1566 (new parasitic copepod species *Lernanthropus togatus*)
 1568 (Eudactylinidae & Pseudocycnidae parasitic Copepoda)
 1588 (*Harnischia* chironomids)
 1589 (*Dinoasteromonas* flagellates, re discoasters)
- Morphometry (biological) (see Morphology)
- Morphometry (physical) (see also Geology; Glaciation; Limnology)
 J 28(2): 139 (of 16 small NW Ont. lakes)
 (2): 295 (re hypothesis to explain differences & similarities among small NW Ont. lakes)
- Morrison, George Edwin
 J 28(3): 379 (hardshell clam oxygen requirements)
 (12): 1907 (respiration in flounder)
- Morse, Norman Harding
 B 175 (economic study of Maritime Provinces oyster fishery)
- Mortality (see also Disease; Lethal limits; Pollution; Predation; Survival; Toxicants)
 J 28(1): 65 (L. Superior lake trout populations re lamprey invasion)
 (5): 745 (chinook & coho salmon sperm & eggs re fertilization by frozen preserved sperm)
 (5): 755 (harbour seal pups, Sable Is., N.S.)
 (7): 1057 (larval & juvenile fish in warm discharge canal of nuclear power plant)
 (8): 1107 (mathematical model of pollutant superimposed mortality in fathead minnow populations)
 (10): 1666 (re population biostatistical analysis)
 (10): 1573 (re animal production-biomass ratio)
 (10): 1545 (Pac. herring eggs & early larvae, re temperatures & salinities)
- (10): 1511 (of hatching Pac. salmon eggs, re bacterial flora associated with egg surfaces)
 (12): 1883 (winter kill of yellow perch & northern pike in Manitoulin Is. lakes (L. Huron)) (mass, of fish in NW Miramichi R., N.B., 1969)
 T 226 (tank-cultured sablefish)
 243 (mountain whitefish & rainbow trout, from uncertain causes, Kootenay L. & Lardeau R., B.C.; multispecies, from uncertain cause, tidal Nitinat L., B.C.)
 248 (phytoplankton, from zooplankton grazing, re marine productivity)
 S 1494 (behaviour of growth & mortality estimates based on age-length keys)
 1513 (phytoplankton, from zooplankton grazing, re marine productivity)
 1584 (herring, from coke-oven intermediate oil pollution in N Sydney Harbour, N.S.)
- Mosquito (*Culex pipiens*)
 J 28(5): 705 (biological magnification & degradation of insecticides by)
- Mouse (see Mice)
- Mouth (see also Jaw)
 J 28(10): 1433 (role in terebellid polychaete tube building)
- Movement (see Behaviour; Currents; Locomotion; Migration; Swimming; etc.)
- Moxostoma macrolepidotum* (see Redhorse, shorthead)
- Mud (see Sediments)
- Muir, Barry Sinclair
 J 28(7): 947 (blood pathway and pressure drop in fish gills)
- Multivariate analysis (see also Computer programming; Mathematical treatment of data)
 J 28(3): 369 (of X-ray spectroanalysis of sockeye salmon from different regions)
 T 200, 212 (of radioisotope X-ray fluorescence spectrometric data)
 S 1510 (re applying bioassay results to pollutants toxicity towards fish)
 1580 (shallow-water marine benthos, P.E.I.)
- Mummichog (*Fundulus heteroclitus*)
 J 28(7): 999 (schooling vs. aggregation spacing & density)
 (8): 1208 ("hemagglutinogens")
 (9): 1225 (re cadmium poisoning)
 T 255 (yellow phosphorus toxicity tests)
 261 (bibliography for Gulf of St. Lawrence)

- Mundie, John Harold
J 28(6): 849 (sampling benthos & substrate materials in shallow streams)
- Munidopsis* (crabs)
J 28(10): 1527 (*M. quadrata* range extension off B.C.)
- Murray, Derek A. J.
J 28(7): 1043 (NTA determination in inland waters)
- Muscle (see also Fillets; Flesh; Myosin; Protein; Quality of fishery products)
J 28(1): 1 (dimethylamine & other amine formation in stored frozen light vs. dark muscle of various Atl. coast fishes)
(1): 59 (DDT residues in N.B. & P.E.I. fishes & shellfishes)
(6): 869 (octopine formation in sea scallop, as possible freshness index)
(7): 1005 (multiple malate dehydrogenase isozymes of walleye skeletal, re genetics)
(7): 1053 (genic polymorphism of tetrazolium oxidase in bluefin tuna)
(8): 1191 (fatty & amino acids of Dungeness crab skeletal)
(8): 1203 (field technique for obtaining small samples from living fish)
(9): 1325 (postmortem changes in glycogen phosphorylase activity in sucker & pike)
(11): 1745 (myogens & lactate dehydrogenase of suckers)
B 177 (paralytic shellfish toxin in E Canada shellfishes adductor)
T 256 (scallop meat size, Georges Bank commercial fishery)
S 1459, 1506 (sterols of sea scallop)
1509 (accelerated denaturation of rabbit & trout myosin in frozen solution)
1527 (sterols of crustacean)
- Muskellunge (*Esox masquinongy*) (*E. maskinongy*; Great Lakes muskellunge)
T 261 (bibliography for Gulf of St. Lawrence)
A 201 (mercury contamination in Great Lakes)
- Muskellunge, Great Lakes (see Muskellunge)
- Mussel, black (see Mussel, blue)
- Mussel, blue (*Mytilus edulis*) (black mussel)
J 28(1): 59 (DDT residues in N.B. & P.E.I.)
(5): 793 (yellow phosphorus concentration in body, N.S.)
(9): 1225 (cadmium toxicity tests)
B 177 (re paralytic shellfish poisoning, E Canada)
S 1569 (determination of residual fuel oil contamination in)
- Mussel, horse (see Mussel, red)
- Mussel, red (*Volvella (Modiolus) modiolus*) (horse mussel)
B 177 (re paralytic shellfish poisoning, E Canada)
- Mussel, ribbed (*Modiolus demissus*)
J 28(4): 527 (upper lethal temperatures re osmotic stress)
- Mya arenaria* (see Clam, softshell (Atlantic))
- Myctophidae (see Lanternfishes; also names of species)
- Myctophum punctatum* (see Lanternfish, spotted)
- Mylocheilus caurinus* (see Peamouth)
- Myogens (see also Muscle; Myosin)
J 28(11): 1745 (of dwarf & large white suckers & of longnose sucker)
- Myosin (see also Muscle; Myogens)
S 1509 (accelerated denaturation of rabbit & trout, in frozen solution)
1561 (sulphydryl content of rabbit & rainbow trout, re protein stability)
- Myoxocephalus aeneus* (see Grubby)
octodecemspinosus (see Sculpin, longhorn)
polyacanthocephalus (see Sculpin, great)
scorpioides (see Sculpin, arctic)
scorpius (see Sculpin, shorthorn)
- Mysids
J 28(2): 257 (*Mysis relicta* in zoobenthos of 15 small NW Ont. lakes)
- Mysis relicta* (see Mysids)
- Mytilus edulis* (see Mussel, blue)
- Myxine glutinosa* (see Hagfish, Atlantic)
- N
- Nakai, Shurye
S 1531 (casein & polyethylenimine)
- Nakamura, Royden
J 28(6): 928 (food of tide-pool Cottidae)
- Nakatani, Roy Eiji
J 28(9): 1253 (*Chondrocyccus columnaris* disease)
(11): 1739 (disease susceptibility of young trout and salmon)
- Narayanan, Memana
J 28(9): 1342 (technique for measurement of carbon dioxide in fish)
- Narver, David Wells
CNG 91 (Vancouver Is. steelhead trout age & size)
- Narwhal (*Monodon monoceros*)
MSP 13(F) (actual & potential Canadian Arctic fishery)
A 231 (actual & potential Canadian Arctic fishery)

- Nash, Frank William
T 251 (length-girth relationships for Pac. perch)
- Nasopalatine canals
S 1574 (oral remnants of, in fin whales)
- Nassarius obsoletus* (see Snail, eastern mud)
- National Parks (see Banff National Park; Jasper National Park; Waterton Lakes National Park; Yoho National Park)
- Neal, Wanda Eloise
J 28(1): 1 (DMA in muscle of gadoid fish)
- Nebraska
J 28(11): 1811 (freshwater fishes tolerance to alkalinity in eutrophic lakes & ponds)
- Necrosis (see Disease; Virus)
- Neish, Iain Charles
J 28(1): 49 (salamander populations in Marion L., B.C.)
- Nelson, Joseph Schieser
J 28(3): 427 (comparison of the Aulorhynchidae & Gasterosteidae)
- Nematocysts
J 28(10): 1677 (types in a sea anemone)
- Nematoda (roundworms)
J 28(10): 1385 (various Polychaeta as intermediate hosts of)
(10): 1645 (N & Central America distribution of *Rhabdochona*, including a new species *R. canadensis*; descriptions of 5 other species & key to genus)
T 160 (3 species found in *Lepidion eques morio* fish)
S 1487 (diseases & other effects of parasitization on fishes; review)
1532 (Tylenchidae of a high Colorado mountain creek)
1565 (instrument for removing cephalic sections)
A 181 (*Anisakis* as parasitic indicator of geographical origin of Atl. salmon stocks)
219 (*Anisakis* incidence variations in Atl. herring from different Canadian areas)
224 (parasitic to N American, USSR, & European coregonid fishes)
- Neomphitrite robusta* (terebellid polychaete)
J 28(10): 1433 (tube-building re feeding)
- Neptune, ten-ridged (see Whelk, ten-banded)
- Neptunea decemcostata* (see Whelk, ten-banded)
- Nereis* (see Polychaeta)
virens (see Sandworm)
- Nervous system
S 1550 (re Atl. sea raven gill proprioceptors reflexes)
- Nets (see also Plankton; Trawling; Sampling)
J 28(6): 821 (gillnet selectivity re Skeena R. sockeye & pink salmon fisheries)
(8): 1167 (American shad net avoidance behaviour)
T 264 (fluid mechanics of nets, netting, & low-solidity screens)
S 1493 (assessments of effects of increasing mesh size of Atl. cod trawls)
- New Brunswick (see also Fundy, Bay of; Miramichi River; St. Lawrence, Gulf of; also localities and bodies of water)
J 28(1): 59 (DDT residues in marine fishes & shell-fishes)
(9): 1285 (methylmercury in freshwater & marine fishes)
B 175 (economic study of Maritime Provinces oyster industry)
T 270 (Atl. salmon catches, 1947-69)
S 1552 (DDT residues in young salmon re forest spraying)
A 207 (herring fishery, 1963-69, & biology)
208 (Bay of Fundy herring vertebral numbers, & origin of "sardine" herring)
- Newfoundland (see also Labrador)
J 28(4): 553 (meristic differences between spring & autumn spawning herring from SW)
CJG 18: 1 (recent herring fishery developments); 20 (herring tagging results in SW coastal waters); 25 (herring investigations in NE coastal waters & Labrador)
T 233 (Long Harbour bottom deposits content of elemental phosphorus & fluorides)
270 (Atl. salmon catches, 1956-69)
S 1542 (temperatures & salinities in E waters)
A 181 (research summary of transplant of B.C. pink salmon to)
185 (capelin as a latent resource)
192, 193, 194 (capelin fishery)
194 (general fisheries)
223 (combating elemental phosphorus pollution, Long Harbour)
- Newt (*Taricha granulosa*)
J 28(1): 49 (populations in Marion L., B.C.)
- Nezumia bairdi* (see Marlin-spike)

Abbreviations: J — Journal. B — Bulletin. AR — Annual Report. R — Review. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- Nichols, Frederic Hone
J 28(10): 1491 (new benthic polychaetes)
- Nicholson, Harold Frederick
S 1529 (trace elements and chlorophyll in L. Ontario)
- Nickel derivatives
J 28(2): 277 (in sediments of 4 small NW Ont. lakes)
(5): 786 (in dressed Canadian fishes from industrial area lakes)
S 1529 (distribution in L. Ontario)
- Nigrelli, Ross F.
J 28(8): 1208 (killifish "hemagglutinogens")
(11): 1809 (lymphocystis disease in Pac. fish)
- Nitinat Lake, Vancouver Island, B.C. (tidal)
T 245 : 12 (multispecies mortality from probable sudden overturn of waters)
- Nitrate (for general data re content in natural waters, see Nutrients, aquatic; see also Limnology; Oceanography)
J 28(2): 171, 203 (in waters of several small NW Ont. lakes)
(2): 203 (effect on photosynthesis when added to samples of water from small NW Ont. lakes)
(11): 1763 (eutrophication of small NW Ont. lake upon addition of)
T 265 (in sea waters & ice, Frobisher Bay, Baffin Is., N.W.T.)
S 1467 (automated measurement of, in sea water)
A 216 (re Great Lakes eutrophication)
- Nitrilotriacetate, trisodium (detergent to replace phosphates)
J 28(7): 1043 (determination in inland waters)
T 258 (toxicity tests on aquatic invertebrates & amphibians, re detergent pollution)
S 1536 (as possible cause of deformed chironomids larvae in lakes)
- Nitrite (for general data re content in natural waters see Nutrients, aquatic; see also Limnology; Oceanography)
J 28(2): 171 (in waters of several small NW Ont. lakes)
- Nitrogen derivatives (see also Amines; Ammonia; Nitrate; Nitrite; Proteins; also other types of nitrogen compounds)
J 28(1): 7 (seasonal changes in lipid, protein, & other nitrogen of freshwater triclad flatworm)
(2): 171 (total dissolved, in waters of many small NW Ont. lakes)
(2): 215 (content of periphyton in 4 small NW Ont. lakes)
(2): 277 (content of sediments in 16 small NW Ont. lakes)
(2): 295 (re similarities & differences in small NW Ont. lakes)
- (3): 449 (re protein consumption of bluegill sunfish)
(6): 911 (particulate, re carbon: nitrogen relations in Chesapeake Bay Md.)
- Nocomis biguttatus* (see Chub, hornyhead)
micropogon (see Chub, river)
- Nomenclature (see also Taxonomy)
J 28(3): 323 (*Lepeophtheirus* vs. *Dentigryps* caligid parasitic copepods)
(7): 987 (*Salmo* species of Upper Kern R. Basin, Calif.)
S 1499 (misuse of name *Caligus rapax* (copepod) since 1850)
1588 (*Harnischia* chironomids)
- Non-linear response surfaces
T 244 : 42 (re multivariate analysis)
- North Boulder Creek, Colorado
S 1532 (distribution of invertebrates in, as high mountain brook with lakes)
1533 (chironomids & other invertebrates in)
- Northcote, Thomas Gordon
J 28(9): 1259 (cutthroat and Dolly Varden segregation)
- Northwest Territories (Canada) (see also Arctic)
A 231 (fish production & utilization for man & dogs)
- Nota, Dirk Johannes Gregorius
S 1511 (European flints on N American coast)
- Notacanthus nasus* (see Eel, spiny)
- Notemigonus chryssoleucas* (see Shiner, golden)
- Notoscopelus krøyeri* (see Lanternfish, Krøyer's)
- Notropis cornutus* (see Shiner, common)
hudsonius (see Shiner, pottail)
spilopterus (see Shiner, spottail)
- Nova Scotia (see also Bedford Harbour; Fundy, Bay of; Oceanography, Atlantic coast; St. Lawrence, Gulf of; St. Margaret's Bay; also other localities)
J 28(5): 755 (whelping seal colony observations, Sable Is.)
(9): 1285 (methylmercury in N.S. banks fishes)
B 175 (economic study of Maritime Provinces oyster industry)
T 252 (ecology & distribution of herring larvae along S coast; macrozooplankton biomass ecology on Scotian Shelf)
270 (Atl. salmon catches 1947-69)
A 207 (herring fishery, 1963-69, & biology)
208 (Bay of Fundy herring vertebral numbers)
- Noven, Bengt
J 28(2): 245 (zooplankton distribution & abundance in 2 FRB Experimental Lakes, NW Ont.)

Nuclear power plant (*see also* Thermal power plants)
J 28(7): 1057 (mortality vs. survival of larval & juvenile fish in warm water of discharge canal)

A 232 (effluent as source of radioactivity in marine environment)

Nucleic acids (*see* Acids, nucleic; Nucleosides)

Nucleosides; Nucleotides (*see also* Acids, amino; Acids, nucleic; Enzymes)

J 28(6): 869 (re octopine formation in sea scallop muscle)

(10): 1603 (ribonucleotide reductase in sockeye salmon immature testes)

S 1508 (salmon testes deoxyribonuclease re inter-nucleotide linkages)

1523 (lingcode muscle purine & pyrimidine nucleoside phosphorylases)

1525 (trout liver pyrimidine deoxynucleoside phosphorylase & deoxyribosyltransferase)

1560 (deoxyribonucleic acid polymerase from sockeye salmon testes)

A 226 (nucleoside cyclic phosphate diesterases)

227 (nucleotide phosphomonoesterases)

Nucleotides (*see* Nucleosides)

Nutrients, aquatic (*see also* Limnology; Oceanography; Productivity, primary)

J 28(2): 171, 203 (in waters of many small NW Ont. lakes)

(2): 203 (effects of various nutrients on photosynthesis when added to water samples from various small NW Ont. lakes)

(5): 790 (nitrogen, phosphorus, & iron enrichment influence on photosynthesis & assimilation ratios of N Pac. phytoplankton)

T 247 (Bedford Basin, N.S., re phytoplankton production, 1969-70)

265 (in Frobisher Bay waters & ice, N.W.T., re primary production)

S 1467 (automated measurement of seawater dissolved)

1482 (comparison of eutrophicated Bedford Basin vs. nearby St. Margaret's Bay, N.S.)

1485 (importance & general implications of organic matter in aquatic environments, particularly re filter-feeding copepods)

1538 (marine dissolved, re energy flow & species diversity in phytoplankton bloom)

A 216 (re Great Lakes eutrophication)

220 (program during C.S.S. *Hudson* oceanographic survey circumnavigating N & S America)

Nutrition value (*see also* Composition, chemical; Feed; Feedstuff; Production, primary; Rations)

J 28(10): 1635 (of zooplankton in young sockeye salmon diets)

T 248 (re planktonic herbivores grazing & production)

Nyman, Olof Lennart

S 1545 (electrophoretic analysis of hybrids)

1547 (ecological interaction of trout)

O

Obituary

J 28(4): 599 (John Douglas Hipwell Strickland)

Ocean (*see* Oceanography headings; *also* names of oceans)

Ocean Station P (*see* Oceanography, north Pacific Ocean)

Oceanography, arctic

T 265 (physical, nutrient, & primary production data, Frobisher Bay, Baffin Is.)

MSP 13(F) (summary of FRB investigations of Canadian)

Oceanography, Atlantic west coast (*see also* Hydrography; Oceanography, northwest Atlantic; Pollution)

T 219 (St. Margaret's Bay, N.S.)

247 (Bedford Basin, N.S., re phytoplankton production)

252 (temperatures, N.S. Shelf)

271 (Gulf of St. Lawrence circulation patterns & geopotential anomalies, June 1968 & Sept. 1969)

S 1482 (comparison with eutrophicated Bedford Basin, N.S.)

1542 (temperatures & salinities off E Nfld., 1969)

Oceanography, general (*see also* Pollution; Production, primary; Sea water; Sounding, echo)

J 28(1): 102 (plotting bathythermograph transect data on computer printer)

T 218 (effects of sea water on bacteria survival)

S 1467 (automated measurement of dissolved nutrients)

1472 (phenosafranin as improved indicator in chlorinity titrations)

1476 (implementation of Canadian ocean engineering, chemical oceanography, & geochemistry re pollution & climatology)

1512, 1515 (isopiestic measurements of ternary systems)

1539 (re capacity of estuaries to accept pollutants; use of dyes)

A 183 (re ocean resources management)

220 (C.S.S. *Hudson* circumnavigation of N & S America)

Abbreviations: J — *Journal*. B — *Bulletin*. AR — *Annual Report*. R — *Review*. Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — *Technical Reports*. MSP — *Miscellaneous Special Publications*. S — *Studies*. A — *Interpretive Articles*.

- 232 (radioactivity in the marine environment: extensive summary of book)
- Oceanography, North Pacific Ocean (*see also* Oceanography, Pacific Coast)
- T 211 (data from Ocean Weather Station P oceanographic program, 1969-70)
- 230, 240 (Ekman transport charts, 1969, 1970)
- 238, 239 (Ekman & other transport computations, 1970, 1969)
- A 204 (re INPFC salmon & steelhead trout studies)
- Oceanography, Northwest Atlantic (*see also* Hydrography; Oceanography, Atlantic coast)
- T 199 (re otter-trawl survey, 1969)
- A 223 (combating pollutants)
- Oceanography, Pacific east coast (*see also* Oceanography, North Pacific Ocean; Pollution)
- J 28(5): 727 (re petrale sole embryonic development)
- (8): 1077 (physical oceanographic features of 32 Chilean fiord inlets & adjacent waters)
- T 210 (during B.C. otter trawl surveys)
- 253 (Strait of Georgia temperatures & current velocities, 1968-70)
- Octopine (arginine derivative)
- J 28(6): 869 (in sea scallop muscle re freshness index)
- Octopus (*Octopus apollyon*)
- T 257 (taken in 1970 B.C. trawl fishery)
- Octopuses
- T 225 (associated with Bay of Fundy scallop beds)
- Odense, Paul Holger
- J 28(11): 1793 (effects of oil on cardiac functions of rats)
- T 229 (effects of herring oil on organs of rats)
- Odobenus rosmarus* (*see* Walrus)
- Odonata (*see also* Insects, aquatic)
- J 28(5): 705 (biological magnification & degradation of insecticides by)
- T 258 (toxicity tests of trisodium nitrilotriacetate detergent on, re pollution)
- Odour and reactions to (*see also* Quality of fishery products)
- J 28(4): 565 (olfactory epithelium electrical responses of Atl. salmon to various organic chemicals)
- T 165(F) (muddy, in rainbow trout)
- S 1574 (oral remnants of nasopalatine canals in fin whales)
- O'Halloran, Mary Jane
- S 1477 (Leydig cell homolog in testis of sexually mature Atl. salmon)
- 1478 (identification of interrenal tissue in American Atl. salmon)
- Oils, fuel (as pollutant) (*see* Oils, petroleum)
- Oils, petroleum (as pollutants)
- J 28(9): 1327 (Copepoda tolerance to particulate oil, & its sedimentation via feces)
- (12): 1912 (residues in Chedabucto Bay, N.S., 14 months after spill of)
- T 217 (characterization, re tracing origin of spills affecting aquatic environment)
- S 1476 (Canadian implementation of ocean engineering, chemical oceanography, & geochemistry re oil pollution)
- 1569 (determination of residual contamination of aquatic animals)
- A 223 (combating, on Canadian Atl. coast)
- Oils and fats (*see also* Acids, fatty; Glycerides; Lipids; Oils, petroleum)
- J 28(4): 601 (fatty acids of sand lance oils & lipids)
- (11): 1793 (*see* T 229 below)
- T 216, 257 (landings for, from B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 220 (effects of storing sockeye salmon in ice vs. refrigerated sea water on free oil content of canned product)
- 229 (rat tests to see if feeding raw or partially hydrogenated Atl. herring oil causes heart or liver fat deposition)
- 249 (analysis methods for detecting & estimating marine oil adulteration of all-vegetable margarines & cooking fats)
- 272 (halogenated hydrocarbon residues in commercial Atl. fish oil)
- S 1514 (Amazon R. dolphin jaw & blubber fats composition re echolocation ability)
- 1584 (coke-oven intermediate oil re herring mortality in N Sydney Harbour, N.S.)
- 1591 (pristane & other hydrocarbons in some freshwater & marine Canadian commercial fish oils)
- Okanagan Valley lakes, B.C.
- S 1536 (deformed chironomids larvae possibly caused by synthetic chemical pollutants)
- Olfactory perception and response (*see* Odour)
- Oligochaeta
- J 28(3): 335 (tubificid, of Toronto Harbour, L. Ontario: types of sediment bacteria surviving ingestion by)
- (6): 849 (samplings from shallow stream bed)
- (11): 1683 (associations & species diversification in L. Ontario bays)
- S 1532, 1533 (of a high Colorado mountain creek)
- 1543 (Georgian Bay, L. Ontario, & L. Erie; also key)
- Oligocottus maculosus* (*see* Sculpin, tidepool)
- snyderi* (*see* Sculpin, fluffy)
- Oligotrophy (*see also* Eutrophication)
- J 28(2): 265 (in several small NW Ont. lakes as

- indicated by diatom species in sediments)
(11): 1683 (re benthic macroinvertebrates associations & species diversity in L. Ontario bays)
- Olson, P. A.
J 28(11): 1739 (disease susceptibility of young trout and salmon)
- Oncorhynchus gorbuscha* (see Salmon, pink)
 keta (see Salmon, chum)
 kisutch (see Salmon, coho)
 nerka (see Salmon, sockeye; Kokanee)
 nerka (kennerlyi) (see Kokanee)
 tshawytscha (see Salmon, chinook)
 see also Salmon (Pacific, in general)
- Ontario (see also Erie, Lake; Georgian Bay; Great Lakes; Huron, Lake; Ontario, Lake; Quinte, Bay of; St. Clair, Lake; Superior, Lake; also other localities and bodies of water)
J 28(2): entire issue (FRB Experimental Lakes Area program for biological productivity & eutrophication in many small lakes)
- Ontario, Lake (see also Great Lakes)
J 28(5): 786 (heavy-metal concentrations in dressed lake whitefish)
(11): 1683 (benthic macroinvertebrates associations & species diversity in certain bays)
(11): 1699 (macroinvertebrate production in certain bays)
(11): 1715 (benthos community metabolism in certain bays)
S 1529 (trace elements & chlorophyll *a* distribution)
1536 (occurrence of deformed chironomids larvae possibly caused by synthetic chemical pollutants)
1543 (Oligochaeta, Sphaeriidae, & Chironomidae)
- Ophiodon elongatus* (see Lingcod)
- Ophiuroidea (see Starfishes)
- Orcinus orca* (see Whale, killer)
- Orconectes virilis* (see Crayfishes)
- Ordination (see also Associations; Communities)
S 1580 (& classification of many shallow-water benthic species, P.E.I.)
- Ornithology (see Birds; also names of species)
- Orthopagurus* (crabs)
J 28(10): 1527 (*O. minimus* range extension off B.C.)
- Oryzias latipes* (see Medaka)
- Osmerus mordax* (see Smelt, rainbow)
- Osmoregulation (see Salinity, reactions to)
- Osteology (see also Bone)
J 28(3): 427 (re phylogenetic implications in tube-snouts and sticklebacks)
- Ostovar, Kurosh
J 28(5): 643 (gamma irradiation of whitefish *Salmonella*)
(5): 783 (effects of washing on keeping quality of freshwater fish)
- Ostracoda (see also Crustacea)
J 28(6): 928 (in feed of fluffy & tidepool sculpins)
T 266 (*Philomedes globosa*, Frobisher Bay, Baffin Is., N.W.T.)
S 1587 (fossil, re Pleistocene paleoecology of Santa Barbara Is., Calif.)
- Otoliths
J 28(10): 1621 (re aging northern rockfish)
T 231 (re aging arctic char)
S 1464 (critique of use for aging Gulf of St. Lawrence herring)
- Ott, Alvin George
J 28(5): 745 (cryo-preserved sperm fertilize salmon eggs)
(12): 1915 (preservation of trout sperm)
- Otter, sea (see Sea otter)
- Otter trawl (see Trawling)
- Otto, Robert George
J 28(3): 343 (pre-smolt coho survival & growth re salinity)
- Ova (see Eggs)
- Ovary (see also Eggs; Fecundity; Gonads; Hermaphroditism; Hormones; Maturity; Reproduction; Spawning)
J 28(4): 477, 485 (hormones effects on gonadectomized sockeye salmon)
(5): 793 (selective accumulation of yellow phosphorus from sea water, by lobster)
(7): 971 (length re body length of mature *Sagitta elegans* arrow worms, St. Margaret's Bay, N.S.)
(7): 1029 (fecundity of right vs. left, in Atl. capelin)
(8): 1191 (fatty acids & amino acids of Dungeness crab)

- S 1535 (chinook salmon gonadotropin effect on growth & maturation of gonadectomized vs. normal guppy)
- 1557 (temperature & photoperiod effects on crayfish maturation of)
- Oxygen, dissolved (for general data re natural waters see Limnology; Oceanography; see also Respiration)
- J 28(2): 157, 257 (of many small NW Ont. lakes)
- (2): 295 (re differences & similarities among small NW Ont. lakes)
- (3): 379 (requirements for northern quahaug embryonic & larval development)
- (6): 883 (effects on Pac. cod eggs development re geographical distribution)
- (8): 1119 (chronic effects of low concentrations on fathead minnow)
- (8): 1196 (digital recorder monitoring in fish tanks)
- (9): 1303 (depletion effect on walleye photic behaviour)
- (10): 1459 (concentration re polychaete settlement on test panels)
- (11): 1815 (dispenser for simultaneous delivery of Winkler reagents)
- (12): 1823 (handling & salinity effects on striped bass requirements)
- Oyster, Atlantic (*Crassostrea virginica*)
- J 28(1): 59 (DDT residues in N.B. & P.E.I.)
- (6): 843 (biological activity of zinc in, determined by feeding to rats)
- B 175 (economic study of Maritime Provinces fishery)
- S 1572 (saturated & isoprenoid fatty acids distribution in lipids)
- A 109(F) (eelgrass control on beds)
- 200 (mercury contamination)
- Oyster, Pacific (*Crassostrea gigas*)
- B 178 (raft culture in B.C.)
- Oyster drill, Atlantic (*Urosalpinx cinerea*)
- J 28(9): 1225 (cadmium toxicity tests)
- A 204 (salmon & steelhead trout studies in northern)
- Packaging
- A 203 (advances in, for fishery products)
- Pagophilus groenlandicus* (see Seal, harp)
- Paguristes* (crabs)
- J 28(10): 1527 (new records off B.C. for *P. tergidis* & *P. alreiy*)
- Pagurus* (see Crabs, hermit)
- Paintings
- A 228 (of Greenland life & scenery: book review)
- Palaemonetes kadiakensis* (see Shrimp, glass)
- vulgaris* (see Shrimp, grass)
- Paleolimnology (see Evolution; Geology; Glaciation)
- Palinurus argus* (see Lobster, spiny)
- Pancreas (see also Hepatopancreas)
- J 28(4): 485 (histological effects of hormones & cortisol on gonadectomized adult sockeye salmon)
- (7): 1064 (vs. feces re presence of necrosis virus in brook trout)
- (9): 1350 (infectious necrosis virus found in 2 Ont. brook trout hatcheries)
- S 1462 (substrate specificity of pancreatic lipase)
- 1471 (pancreatic lipase colorimetric assay method)
- Pandalid, benttail (*Pandalus goniorus*) (proposed name in B.C. for humpy shrimp of Alaska; see Shrimp, humpy)
- Pandalid, bluespotted (*Pandalus stenolepis*) (proposed name in B.C. for this species)
- T 241 : 38 (bibliography)
- Pandalidea (see also Pandalid; Prawn; Shrimp)
- T 241 (bibliography, with emphasis on economically important *Pandalus* species)
- Pandalopsis dispar* (see Shrimp, sidestripe)
- Pandalus borealis* (see Shrimp, pink)
- danae* (see Shrimp, coonstripe)
- goniorus* (see Shrimp, humpy; Pandalid, bent-tail)
- hypsinotus* (see Shrimp, humpblack)
- jordani* (see Shrimp, smooth pink)
- kessleri* (see Prawns)
- montagui* (see Shrimp, striped pink)
- platyceros* (see Prawn)
- stenolepis* (see Pandalid, bluespotted)
- species in general (see Pandalidae)
- Paralepis coregonoides borealis* (see Lancetfish, scaled)
- rissoi krøyeri* (see Barracudina, white)

P

- Pachycerianthus* (see Sea anemones)
- Pacifastacus trowbridgii* (see Crayfishes)
- Pacific Ocean (see also Oceanography)
- J 28(10): 1403 (amphipacific distribution of some 25 polychaete species)
- T 230, 240 (N Pac. Ekman transport charts, 1969, 1970)
- 238, 239 (N Pac. Ekman & other transport calculations, 1970, 1969)
- 246 (bibliography of trawled fishes off Alaska, B.C., USA)
- S 1466, 1467 (large-scale studies of primary production in northern)

- Paralichthys californicus* (see Halibut, California) 1501 (*Haemobaphes* copepods on Strait of Georgia sculpins)
- Paraliparis copei* (see Seasnail, blacksnout) 1566 (new copepod species *Lernanthropus togatus* on gills of marine Kenyan fish *Gaterin*)
- Paralomis* (crabs) 1567 (Crustacea as enemies of fishes, re diseases)
- J 28(10): 1527 (*P. verrilli* first record off B.C.) 1568 (copepods on Australian fishes)
- Paralytic shellfish poisoning A 58(F) (flake larvae cause of human dermatitis)
- J 28(11): 1789 (melanin distribution in butter clam re retention of paralytic toxin) 224 (world distribution of coregonid fishes & their parasites)
- B 177 (in E Canada: history; sources; symptoms; precautions; case histories)
- Parapagurus* (hermit crabs)
- J 28(10): 1527 (*P. pilosimanus* range extension off B.C.)
- Parapasiphae* (caridean shrimps)
- J 28(10): 1615 (*P. sulcatifrons* new record, off B.C.)
- Parasites; Parasitization (see also Disease)
- J 28(1): 31 (cestode & trematodes in N Atl. swordfish)
- (3): 323 (caligid *Lepeophtheirus* copepods from ocean sunfish)
- (4): 616 (probable parasitism by giant type of American brook lamprey, vs. non-parasitism by ordinary type)
- (5): 767 (*Labrifer balli*, new trematode species, from California pink seaperch)
- (5): 771 (rainbow trout by lampreys, Batchawana Bay, L. Superior)
- (6): 901 (habitat of 2 blood fluke species in N Pac. rockfishes re habitat of those fishes)
- (8): 1143 (locomotory mechanisms of 2 copepods)
- (10): 1373 (new form of parasite found on *Metavermilia nates* polychaete)
- (10): 1527 (of hermit crabs)
- (10): 1385 (various Polychaeta as intermediate hosts of helminth parasites)
- (10): 1563 (2 new species, 1 new record, & several new hosts, of bomolochid copepods)
- (10): 1615 (*Hemiarthrus abdominalis* isopod in new shrimp species)
- (10): 1645 (*Rhabdochona* nematode species in N & Central America fishes, including a new species *R. canadensis*)
- T 160 (of 4 *Lepidion* morid fish species)
- 246 (bibliography of, from N America Pac. coast trawled fishes)
- 250 (computer programming fish parasite data)
- S 1483 (morphometric variation in *Lecithophyllum botryophorum* trematode in Atlantic argentine)
- 1487 (diseases & other effects of nematode parasitization of fishes: review)
- 1496 (new genus & species of copepod, from S India)
- 1501 (*Haemobaphes* copepods on Strait of Georgia sculpins)
- 1566 (new copepod species *Lernanthropus togatus* on gills of marine Kenyan fish *Gaterin*)
- 1567 (Crustacea as enemies of fishes, re diseases)
- 1568 (copepods on Australian fishes)
- A 58(F) (flake larvae cause of human dermatitis)
- 224 (world distribution of coregonid fishes & their parasites)
- Parker, Robert Ray
- J 28(10): 1503 (size selective predation)
- (12): 1921 (herring predators on young salmon)
- S 1499 (redescription of syntypes of *Caligus rapax*)
- Parks (see heading National Parks)
- Parophrys vetulus* (see Sole, English)
- Parr (see names of adult fishes, e.g., Salmon; Trout)
- Parsons, Leon Scott
- J 28(4): 553 (Atl. herring meristic characters)
- CJG 18: 25 (NE Nfld. & Labrador herring investigations)
- Parsons, Timothy Richard
- J 28(4): 599 (obituary — J.D.H. Strickland)
- S 1466 (primary production studies in N Pac. Ocean)
- 1485 (organic matter in aquatic environments)
- 1503 (small particles in sea water)
- A 183 (bases of resource management; oceanography)
- 210 (review of book on marine chemistry)
- 211 (availability of food in marine food chain)
- Particulate matter (see Matter, particulate)
- Passamaquoddy Bay, N.B.
- J 28(7): 935 (components of fish communities by seasons, abundance & temperature regime, re communities in warmer waters)
- Patalas, Kazimierz
- J 28(2): 231 (zooplankton communities in 45 FRB Experimental Lakes, NW Ont.)
- Paterson, Colin Garth
- J 28(3): 365 (simple corer vs. Ekman grab)
- Pathogens (see Bacteria; Disease; Pathology; Viruses)
- Pathology (see also Cytology; Disease; Histology; Parasites; Viruses)
- J 28(1): 104 (rainbow trout skin lesions)
- (3): 448 (lake trout subcutaneous fibroma)
- (4): 517 (vibriosis of Pac. salmon)
- (9): 1241 (skin tumours on Pac. flounders)

- T 245 (re mass mortality from uncertain causes, of mountain whitefish & rainbow trout, Kootenay L., B.C.)
- S 1487 (of nematode-parasitized fishes)
- Patinopecten caurinus* (see Scallop, weathervane)
- Patten, Benjamin Gene
J 28(9): 1352 (increased predation by torrent sculpin)
- Peamouth (*Mylocheilus caurinus*)
J 28(9): 1331 (W Washington distribution re zoogeography)
- Pearcy, William Gordon
J 28(12): 1831 (distribution and abundance of Salpidae)
- Peden, Alex. E.
J 28(6): 927 (range extension of B.C. masked greenling)
(9): 1347 (record of bluespotted poacher in B.C.)
- Peer, Donald Lloyd
S 1482 (study of eutrophicated marine basin)
- Pelecypoda; Bivalvia; Lamellibranchia (see also Mollusca; also Clam; Mussel; Oyster; Scallop)
- T 225 (associated with Bay of Fundy scallop beds)
- S 1469 (occurrence of *Cristispira* spirochaete commensal in 12 of 63 W Canadian marine species)
- 1470 (distributional checklist of B.C. marine)
- Pelosclex multisetosus* (tubificid oligochaete)
J 28(3): 335 (survival of bacteria during ingestion by, in Toronto Harbour, Ont., sediments)
- Pendrell Sound, B.C.
B 178 (re B.C. Pac. oyster culture)
- Pepper, Vernon Alfred
J 28(5): 749 (variation in scale counts of arctic grayling)
- Pepilirus triacanthus* (see Butterfish)
- Peptides (see Polypeptides)
- Perca flavescens* (see Perch, yellow)
- Perch, ocean (see Redfish)
- Perch, Pacific ocean (*Sebastes* (*Sebastodes*) *alutus*)
J 28(3): 417 (reproductive patterns re bathymetric distribution & seasonal abundance)
- T 210, 221, 269 (taken during B.C. groundfish surveys: distribution & abundance)
- 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 237 (length-weight relations, off B.C. in 1969)
- 246 (bibliography)
- 251 (length-girth relations, off B.C. in 1969)
- Perch, pile (*Rhacochilus vacca*)
J 28(10): 1563 (new host of *Bomolochus cuneatus* copepod)
- T 257 (taken in 1970 B.C. trawl fishery)
- Perch, Sacramento (*Archoplites interruptus*)
J 28(11): 1811 (alkali tolerance in Nebraska eutrophic lakes & ponds)
- Perch, shiner (*Cymatogaster aggregata*) (seaperch, shiner)
T 257 (taken in 1970 B.C. trawl fishery)
- Perch, white (*Morone* (*Roccus*) *americanus*)
J 28(7): 1057 (effect of nuclear power plant discharge canal warm water on)
(9): 1285 (methylmercury in N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Perch, yellow (*Perca flavescens*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
(1): 105 (DDT residues in muscle, of Saskatchewan R.)
(5): 783 (slime as bacterial medium re keeping quality)
(5): 786 (heavy-metal concentrations in dressed, from Moose L., Man., & L. Erie)
(7): 957 (vulnerability to northern pike predation)
(9): 1285 (methylmercury in N.B.)
(12): 1883 (winter kill in Manitoulin Is. lakes (L. Huron))
T 261 (bibliography for Gulf of St. Lawrence)
A 200, 201 (mercury contamination in Man. waters & Great Lakes)
- Pereira, Ronald Roy
J 28(5): 643 (gamma irradiation of whitefish *Salmonella*)
- Peridineae (see Dinoflagellates)
- Periphyton (see also Algae)
J 28(2): 215 (of NW Ont. experimental lakes)
- Periwinkle, common (*Littorina littorea*)
J 28(5): 793 (yellow phosphorus concentration in body, N.S.)
T 217 (pollution from petroleum oil spills)
S 1569 (determination of residual fuel oil contamination in)
1572 (saturated & isoprenoid fatty acids distribution in lipids)
- Perlmutter, Alfred
J 28(1): 47 (erythropoiesis in *Trichogaster trichopterus*)

Pesticides (see also Insecticides)

- J 28(4): 613 (organophosphate esterase inhibitor effects; anticholinesterase activity of several)
T 272 (halogenated hydrocarbons re environment: review & bibliography)
A 201 (re Great Lakes pollution & effects on fish as food)

Peters, James Eugene

- T 269 (G. B. Reed groundfish cruise 71-1)

Peters, Marilyn Diane

- S 1549 (occurrence & origin of tropylium ion in the mass spectra of arylboronic acid esters)

Peterson, Richard Harry

- S 1556 (effects of temperature on brain oxygen in salmonid fishes)

Petroleum oils (as pollutants) (see Oils, petroleum)

Petrolithes (crabs)

- J 28(10): 1527 (*P. cinctipes* range extension off B.C.)

Petromyzon marinus (see Lamprey, sea; also Lamprey, sea (landlocked))

Pettibone, Marian Hope

- J 28(10): 1393 (*Stehnelais fusca* & *S. berkeleyi*)

pH (see also Limnology; Oceanography; also Hardness of natural waters)

- J 28(9): 1303 (effects on walleye photic behaviour)
(11): 1811 (alkalinity tolerance of Nebraska freshwater fishes)
T 202 (effects on river diatoms caused by heavy-metal contamination of water)

Phalacrocorax auritus (see Cormorant, double crested)
carbo (see Cormorant, common)

Phanerodon furcatus (see Seaperch, white)

Pharmacology

- B 177 (re paralytic shellfish poisoning)

Phenotypes (see Genes; Polymorphism)

Philonema; Philometra (see Nematoda)

Phoca groenlandicus (see Seal, harp)

hispidula (see Seal, ringed)

vitulina concolor (see Seal, Atlantic harbour)

Phocanema decipiens (see Nematoda)

Phocoena phocoena (see Porpoise, harbour)

Phocoenoides dalli (see Porpoise, Dall)

Pholis gunnellus (see Gunnel, rock)

Phosphatases (see Enzymes)

Phosphates (for general data re content in natural waters see Nutrients, aquatic; Waters, natural; also Limnology; Oceanography) (for phosphatases, see Enzymes; see also Eutrophication; Pollution)

- J 28(2): 171, 203, 295 (in waters of many small NW Ont. lakes)
(2): 203 (effects on photosynthesis when added to samples of water from small NW Ont. lakes)
(2): 215 (content of periphyton in 4 small NW Ont. lakes)
(2): 277 (in sediments of 16 small NW Ont. lakes)
(11): 1763 (eutrophication of small NW Ont. lake upon addition of)
T 258 (toxicity tests of trisodium nitrilotriacetate detergent as replacement for phosphate detergent, re pollution)
265 (in sea waters & ice, Frobisher Bay, Baffin Is., N.W.T.)
S 1467 (automated measurement of, in sea water)
A 216 (re eutrophic pollution in the Great Lakes)
226 (nucleoside cyclic phosphate diesterases)
227 (nucleotide phosphomonoesterases)

Phosphatides (see Nucleosides)

Phospholipids (see also Lipids)

- J 28(4): 601 (fatty acids of sand lance)
S 1564 (fatty acids composition of sea anemone *Metridium dianthus*)

Phosphorescence (see Bioluminescence)

Phosphorus, elemental (for phosphorus derivatives see accompanying Phosph... headings)

- J 28(5): 793 (accumulation in lobster tissues, & in body of clam, quahaug, mussel, periwinkle & starfish, N.S. coast; also clearing rate)
T 233 (content of bottom deposits, Long Bay, Nfld.)
254 (levels in water, Long Harbour, Nfld.)
255 (relative toxicities of production wastes to seawater-maintained fish)
A 223 (combating pollution by, Long Harbour, Nfld.)
232 (³²P as radioactive marine pollutant)

Phosphorylases (see Enzymes)

Photography

- J 28(11): 1805 (estimating distances between schooling aquarium fish by simultaneous)

- Photoperiods (*see* Darkness; Diel habits; Light, reactions to)
- Photophores (*see* Bioluminescence)
- Photosynthesis (*see also* Algae; Chlorophylls; Phytoplankton; Pigments; Plankton; Productivity, primary; Radiation)
 J 28(2): 189, 203 (liquid scintillation method for ^{14}C activity re photosynthesis in several small NW Ont. lakes)
 (2): 203 (by phytoplankton in artificially enriched samples of water from several small NW Ont. lakes)
 (2): 215 (by periphyton of 4 small NW Ont. lakes)
 (5): 790 (nitrogen, phosphorus, & iron enrichment effects on, in N Pac. phytoplankton)
- Phototrophy (*see* Light, reactions to; Productivity, primary)
- Phoxinus eos* (*see* Dace, northern redbelly)
- Physic chesteri* (*see* Hake, longfin)
- Phylogeny
 J 28(3): 427 (osteology re phylogenetic implications in the Aulorhynchidae & Gasterosteidae)
 (6): 879 (lobster enolase re other enolases)
 S 1588 (*Harnischia* complex of chironomids)
- Physa (*see* Snails, freshwater)
- Physiography (*see* Geology; Geomorphology; Glaciation; Morphometry (physical))
- Physiology (*see also* aspects of)
 J 28(1): 7 (seasonal changes in composition & food reserves in flatworm)
 (1): 73 (energetics of a dipteran in thermal springs)
 (1): 95 (differential growth rate of Pac. big skate tail)
 (3): 343 (salinity effects on pre-smolt coho salmon survival & growth)
 (3): 379 (dissolved oxygen requirements for northern quahaug early development)
 (3): 409 (sockeye salmon feed intake)
 (3): 417 (Pac. ocean perch reproductive patterns)
 (3): 449 (bluegill sunfish protein consumption & nitrogen excretion)
 (5): 625, 635 (effects of handling, anesthetization, & surgery of brook trout)
 S 1526 (evidence for pituitary adrenocortical feedback system in eel)
 1550 (of Atl. sea raven gill proprioceptors re respiration)
 A 222 (assessment of pollutant effects on fish)
- Phytane (*see* Hydrocarbons)
- Phytoflagellates (*see* *Dinosteromonas*; Flagellates)
- Phytomacrofauna
 J 28(9): 1322 (quantitative sampler for aquatic)
- Phytoplankton (*see also* Algae; Chlorophylls; Feed; Grazing; Limnology; Oceanography; Plankton; Production, primary; *also* classifications of phytoplankton)
 J 28(2): 189, 203, 215 (re primary production & photosynthesis in several small NW Ont. lakes)
 (2): 295 (re differences & similarities among small NW Ont. lakes)
 (5): 790 (nitrogen, phosphorus, & iron enrichment effects on photosynthesis & assimilation ratios of N Pac.)
 (11): 1763 (change in dominant species on adding phosphate & nitrate to small NW Ont. lake)
 T 247 (production & nutrients, Bedford Basin, N.S., 1969-70)
 248 (grazed by zooplankton, re marine productivity)
 267 (tables, Frobisher Bay, Baffin Is., N.W.T., 1967)
 S 1482 (community structure of eutrophicated Bedford Bay, N.S., vs. St. Margaret's Bay, N.S.)
 1485 (role of aquatic organic matter as feed for)
 1513 (re zooplankton grazing, re marine productivity)
 1538 (energy flow & species diversity in bloom of marine)
 1577 (Como Creek, Colorado)
 1578 (coastal waters of Ellesmere Is., N.W.T.)
 1579 (annual production, St. Margaret's Bay, N.S.)
 1586 (chlorophyll production budget over a 25-hour period, Bedford Basin, N.S.)
 A 211 (re feed availability to different trophic levels in marine feed chain)
 220 (program during C.S.S. *Hudson* oceanographic survey circumnavigating N & S America)
- Pickard, George Lawson
 J 28(8): 1077 (oceanographic features of Chile inlets)
- Pickerel, chain (*Esox niger*)
 J 28(9): 1285 (methylmercury in N.B.)
- Pickerel, grass (*Esox americanus vermiculatus*)
 J 28(4): 613 (blood plasma esterase activity)
- Pigments; Pigmentation (*see also* Chlorophylls)
 J 28(4): 477 (androgen-induced nuptial skin coloration in gonadectomized male sockeye salmon)
 (4): 509 (brook trout skin & flesh pigments after feeding crustacean wastes plus canthaxanthin)
 (10): 1672 (ambicoloration in a petrale sole)
 (11): 1789 (melanin distribution in butter clam re paralytic shellfish toxin retention)

- T 220 (effects of storage of sockeye salmon in ice vs. refrigerated sea water, on colour of canned product)
- A 203 (salmon flesh colour enhancement for canning)
- Pike, northern (*Esox lucius*)
- J 28(1): 105 (DDT residues in muscle, of Saskatchewan R.)
- (4): 613 (blood plasma esterase activity)
- (5): 783 (slime as bacterial medium re keeping quality)
- (5): 786 (survey of heavy-metal concentrations in dressed, from Moose L., Man., L. St. Pierre, & L. Erie)
- (7): 957 (vulnerability of 17 species to predation by)
- (7): 1061 (practical drying equipment for steaks & fillets)
- (9): 1325 (postmortem changes in muscle glucogen phosphorylase activity)
- (11): 1811 (alkalinitolerance in Nebraska eutrophic lakes & ponds)
- (12): 1883 (winter kill in Manitoulin Is. lakes (L. Huron))
- T 261 (bibliography for Gulf of St. Lawrence)
- A 200, 201 (mercury contamination in various Canadian rivers & lakes)
- 224 (incidence of *Trianeophorus crassus* in Heming L., Man.)
- Pillinger, Colin Trevor
- S 1528 (geological fate of chlorophyll)
- Pimephales notatus* (see Minnow, bluntnose)
- promelas* (see Minnow, fathead)
- Pinhorn, Allenby Thomas
- S 1493 (effects of increases in mesh sizes of trawls)
- 1540 (catch/effort assessment of major cod stocks)
- Pinnotheres* (crabs)
- J 28(10): 1527 (*P. pugettensis* & *P. taylora* range extension off B.C.)
- Pipefish, northern (*Syngnathus fuscus*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Pippy, John Herbert Charles
- J 28(3): 461 (record of Atl. menhaden from Northumberland Strait)
- T 226 (Miramichi R. fish mortalities)
- S 1520 (food of giant squid)
- A 58(F) ("swimmers' itch")
- Piscicides (see also Insecticides)
- S 1484 (molecular structure of halogenated mononitrophenols re their toxicities to sea lamprey larvae & rainbow trout fingerlings)
- Pisidium* (see Clams)
- Pitt, Thomas Kenton
- J 28(3): 456 (fecundity of yellowtail flounder from Grand Bank, Nfld.)
- S 1541 (trends in American plaice fishery)
- Pituitary gland
- J 28(4): 477 (histological effects of hormones & cortisol on gonadectomized sockeye salmon)
- S 1526 (physiological evidence for pituitary-adrenocortical feedback mechanism in eel)
- 1535 (chinook salmon gonadotropin effect on sexual behaviour of hypophysectomized & gonadectomized female guppies)
- Placentia Bay; Long Bay; Long Harbour, Nfld.
- T 233 (bottom deposits content of elemental phosphorus & fluorides)
- 254 (elemental phosphorus levels in water)
- S 1539 (capacity to accept pollutants)
- Placid Lake, B.C.
- J 28(9): 1259 (segregation between adult cutthroat & Dolly Varden trout)
- Placopecten magellanicus* (see Scallop, sea)
- Plaice, Alaska (*Pleuronectes quadrituberculatus*)
- T 246 (bibliography)
- Plaice, American (*Hippoglossoides platessoides*)
- J 28(1): 1 (amine formation in stored frozen muscle)
- (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
- (8): 1125 (purines changes in iced fillets)
- (9): 1285 (methylmercury in, N.S. banks)
- T 260 (availability, standing crop, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
- 261 (bibliography for Gulf of St. Lawrence)
- 272 (halogenated hydrocarbon residues detected in)
- S 1541 (fishery trends in ICNAF Subarea 3)
- A 181, 182 (ICNAF Canadian 1969 research summaries)
- 191 (ICNAF report on egg & larvae numbers in Davis & Denmark Straits)
- 194 (Nfld. fishery)
- Planes* (crabs)
- J 28(10): 1527 (*P. marinus* range extension off B.C.)
- Plankton (see also Algae; Diatoms; Phytoplankton; Production, primary; Zooplankton)
- J 28(2): 189, 203, 215, 231, 245, 257 (studies of many small NW Ont. lakes)

- (3): 311 (crustacean, of 146 W Canadian alpine & subalpine lakes & ponds)
- (11): 1783 (^{65}Zn vs. Zn distribution in experimental marine ecosystem)
- T 252 (high-speed sampler)
- A 181, 182 (ICNAF Canadian 1969 research summaries)
- Plants (see Flora, aquatic; Flora, terrestrial)
- Plasma (see Blood; Enzymes; Hormones; Proteins; Serum)
- Platford, Robert Frederick
S 1512, 1515 (isopiestic measurements)
- Platichthys stellatus* (see Flounder, starry)
- Platidia hornii* (Brachiopoda)
T 268 (in B.C. faunistic surveys since 1960)
- Platt, Trevor Charles
T 247 (phytoplankton production & nutrients in Bedford Basin)
S 1482 (study of eutrophicated marine basin)
1538 (marine energy flow)
1579 (production by phytoplankton in St. Margaret's Bay, N.S.)
1586 (effect of plankton grazing in small marine basin)
- Platyhelminthes (see Cestoda; Trematoda; Turbellaria)
- Plecoptera (see Stoneflies)
- Pleuronectes quadrituberculatus* (see Plaice, Alaska)
- Pleuronectidae (righteye flounders) (see also names of species)
T 246 (bibliography of N America Pac. coast)
- Pleuronichthys coenosus* (see Sole, C-O)
decurrens (see Sole, curlfin)
verticalis (see Turbot, hornyhead)
- Plocamionida* (see Sponges)
- Plutonium
A 232 (^{238}Pu as radioactive marine pollutant)
- Poacher, Atlantic (*Agonus decagonus*)
T 161 (bibliography for Gulf of St. Lawrence)
- Poacher, bluespotted (*Xeneretmus triacanthus*)
J 28(9): 1347 (range extension N into B.C.)
- Poacher, sturgeon (*Agonus acipenserinus*)
T 257 (taken in 1970 B.C. trawl fishery)
- Poecilia reticulata* (see Guppy)
- Poisons (see Pollution; Toxicants)
- Polinices heros* (see Clam drill, greater)
- Polistotrema stouti* (see Hagfish, Pacific)
- Pollachius virens* (see Pollock)
- Pollock (*Pollachius virens*)
J 28(1): 1 (dimethylamine formation in dark muscle during frozen storage)
(7): 935 (winter periodic component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(8): 1125 (purines changes in iced fillets)
(9): 1285 (methylmercury in, N.S. banks)
T 261 (bibliography for Gulf of St. Lawrence)
A 182 (ICNAF Canadian 1969 research summary)
- Pollock, Pacific (see Pollock, walleye)
- Pollock, walleye (*Theragra chalcogramma*) (bigeye; Pacific walleye; whiting)
T 210, 221 (catches during B.C. groundfish surveys)
246 (bibliography)
257 (catches in 1970 B.C. trawl fishery)
- Pollution (see also Eutrophication) (Note: Certain entries hereunder are also conveniently segregated under headings such as Insecticides; Mercury and derivatives; Oils, petroleum; Phosphates; Phosphorus, elemental; Pulpmill effluents; etc.)
J 28(1): 59 (DDT residues in N.B. & P.E.I. marine fishes & shellfishes)
(1): 105 (DDT residues in Saskatchewan R. fishes)
(4): 610 (dieldrin residues in green sunfish blood & brain)
(5): 655 (long-term tests of copper sulphate effects on brook trout adults, eggs, & fry)
(5): 705 (biological magnification of insecticides by freshwater invertebrates)
(5): 786 (survey of heavy-metal concentrations in dressed Canadian fishes from industrial vs. non-industrial area lakes)
(5): 793 (yellow phosphorus accumulation in N.S. coast seaweeds & invertebrates; also clearing rate)
(7): 1043 (nitritotriacetic acid assay method for inland waters)
(7): 1057 (discharge from nuclear power plants)
(8): 1107 (mathematical model of superimposed mortality in fathead minnow populations due to zinc)
(9): 1225 (cadmium toxicity tests on various marine organisms)
(9): 1285 (methylmercury in Canadian Maritimes freshwater & marine fishes; also in rain & snow)
(9): 1327 (marine oil spills partly sedimented by zooplankton ingestion & defecation)
(11): 1783 (re zinc)
(11): 1807 (mobilization of mercuric sulphide from aquatic sediments into fish)

- (12): 1912 (residues in Chedabucto Bay, N.S., 14 months after Bunker C fuel oil spill)
- (12): 1877 (DDT accumulation & persistence in a lotic ecosystem)
- B 178 (re raft-culturing of Pac. oyster in B.C.)
- T 200 (possibilities of X-ray fluorescence spectrophotometry of organisms elemental composition, for assessing)
- 202 (effects of zinc & copper on river diatoms & water pH)
- 217 (petroleum oil; characterization re tracing source of spills affecting aquatic environment)
- 218 (antibacterial properties of sea water)
- 233 (elemental phosphorus & fluoride content of bottom deposits, Long Bay, Nfld.)
- 250 (computer programming for)
- 254 (elemental phosphorus levels in water, Long Harbour, Nfld.)
- 255 (relative toxicities of yellow phosphorus production wastes to seawater-maintained fish)
- 258 (toxicity tests of nitrilotriacetic acid detergent)
- 262 (hot water effluent from steam-electric power plants)
- 272 (of environment by halogenated hydrocarbons: review & bibliography)
- S 1476 (re implementation of Canadian ocean engineering, chemical oceanography, & geochemistry)
- 1500 (gases from B.C. coastal water sediments close to pulp mills)
- 1504 (tracing pulp mill effluent dispersal in sea)
- 1510 (applying bioassay results re toxicities towards fish: review)
- 1531 (interaction of casein with polyethylenimine flocculating agent, re removal of pollutants)
- 1534 (flameless atomic absorption spectrophotometric procedure for mercury in fish flesh)
- 1536 (herbicides, insecticides, or detergents as possible cause of deformed chironomid larvae in L. Erie & Okanagan R. lakes, B.C.)
- 1539 (capacity of marine estuaries to accept pollutants; use of dyes to follow flushing action)
- 1552 (decrease in DDT residues in salmon parr after N.B. forest spraying)
- 1553 (mining effluent effects on NW Miramichi R. vascular plants, N.B.)
- 1558, 1570 (polychlorinated biphenyls in sea water; effects on *Gammarus oceanicus* amphipod)
- 1569 (determination of residual fuel oil contamination of aquatic animals)
- 1584 (herring mortality from coke-oven intermediate oil in N Sydney Harbour, N.S.)
- A 178 (details of assay procedure in S 1534 above)
- 183 (re oceanography & ocean resources management)
- 187 (sewage, in confined coastal waters)
- 200, 201 (sources & effects of mercury contamination in Canadian fishes)
- 201 (re environment of Great Lakes fishes as affecting their food for man)
- 203 (lessening of, by recovery of protein from fish processing plant wastewater)
- 216 (phosphate detergents, sewage, etc., re causes of Great Lakes eutrophication (polemical))
- 222 (assessment of effects on fish physiology & behaviour)
- 223 (combating fuel oil, elemental phosphorus, sewage & pulpmill, on Canadian Atl. coast)
- 230 (re a northern environment as sources of food for man)
- 232 (radioactivity in the marine environment: extensive summary of book)
- 233 (ecology re aquatic)
- Polychaeta
- J 28(10): 1360 (dedication of issue to Edith & Cyril Berkeley's investigation on)
- (10): 1365 (list of Edith & Cyril Berkeley's publications on)
- (10): 1373 (revision of *Metavermilia* serpulids & description of 3 new species)
- (10): 1437 (list of 13 recognized *Dodedecaceria* cirratulid species, & description of a new species)
- (10): 1491 (first Washington coast records of *Chloëia entypa* & *Drilonereis falcata minor*)
- (10): 1385 (various species as intermediate hosts of helminth parasites)
- (10): 1393 (descriptions of *Stehnelais fusca* & new species *S. berkeleyi* from E. Pac.)
- (10): 1487 (bioluminescence in two holopelagic families of)
- (10): 1483 (description of new species *Schoederella berkeleyi*, re *S. pauliani*, from off Massachusetts)
- (10): 1455 (redescription of *Malacoceros indicus*)
- (10): 1403 (amphipacific distribution of some 25 species)
- (10): 1433 (tube-building re feeding in *Neoamphitrite robusta*)
- (10): 1429 (description of new aphroditid species, *Macellicephaloides berkeleyi*, from Aleutian trench)
- (10): 1469 (descriptions of new species *Syllides benedicti*, & of 6 other syllid species; also key for Syllidae)
- (10): 1407 (abyssmal annelids: a new family, Fauveliopsidae, with key to genera; 2 new genera, *Berkeleyella profunda* & *Bruunilla*)

Abbreviations: J — Journal, B — Bulletin, AR — Annual Report, R — Review, Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's, T — Technical Reports, MSP — Miscellaneous Special Publications, S — Studies, A — Interpretive Articles.

- natalensis*; a new species, *Progoniada simplex*, & 23 other species; also compendium of 504 species in 242 genera & 52 families)
- (10): 1445 (*Magelona berkeleyi* new species; *M. longicornis* redescription; other *M.* species)
- (10): 1459 (seasonal settlement of *Polydora limicola*, *Capitella capita*, & *Hydroides pacificus*, etc. on test panels, California)
- T 225 (associated with Bay of Fundy scallop beds)
- 266 (Frobisher Bay, Baffin Is., N.W.T.)
- Polychlorinated biphenyls**
- T 272 (& other industrial halogenated hydrocarbons in the environment: review & bibliography)
- S 1463 (identification in mixtures by mass spectrometry)
- 1558, 1570 (toxicity & uptake from sea water, re *Gammarus oceanicus* amphipod)
- 1570 (solubilized in water by non-ionic surfactants)
- Polyethylenimine**
- S 1531 (interaction with casein, re flocculation of water impurities & pollutants)
- Polymorphism**
- J 28(1): 15 (of American lobster esterase isozymes)
- (7): 1005 (of walleye skeletal muscle malate dehydrogenase isoenzymes, re genetics)
- (7): 1053 (genic, of tetrazolium oxidase in bluefin tuna blood & tissues)
- (11): 1745 (serum transferrins re dwarf & large white suckers)
- Polypeptides (see also Proteins)**
- S 1563 (subunits & molecular basis in rainbow & coastal cutthroat trouts hemoglobins)
- 1571 (re molecular basis for multiplicity of Pac. salmon & rainbow trout hemoglobins)
- Polyphosphates (see Phosphates)**
- Polysaccharides (see Glycogen; Saccharides)**
- Pomatomus saltatrix* (see Bluefish)
- Pomoxis annularis* (see Crappie, white)
- nigromaculatus* (see Crappie, black)
- Pond, Stephen Garrick**
- T 254 (phosphorus levels in Nfld. water)
- Pond, W. L.**
- J 28(11): 1801 (temperature selection of trout)
- Ponds; Ponding (see also Culture)**
- J 28(3): 311 (crustacean plankton of 146 W Canadian alpine & subalpine ponds & lakes; definition of pond vs. lake)
- CHN 42 (disinfecting lobster-holding, against gaffkemia disease bacteria)
- Pontoporeia affinis* (see Amphipoda; Crustacea)
- Populations; Communities (see also Abundance; Exploitation; Genetics; Indicator species; Stock)**
- J 28(1): 35, 45 (differences in benthos & fishes upstream & downstream of a dammed Ont. lake)
- (1): 49 (differences in populations of 2 salamander species, Marion L., B.C.)
- (1): 65 (L. Superior lake trout population biology before lamprey invasion)
- (2): 203, 215, 231, 245, 257 (plankton in many small NW Ont. lakes)
- (3): 458 (response of brook trout populations to a fishery)
- (7): 971 (empirical mathematical model for *Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)
- (7): 1009 (discreteness of, in spring & autumn southern Gulf of St. Lawrence herring fisheries)
- (8): 1107 (mathematical model of effects of pollutant superimposed mortality in fathead minnow)
- (9): 1309 (white whale, Cumberland Sound, Baffin Is., N.W.T.)
- (10): 1666 (Derzhavin's biostatistical analysis method for)
- (10): 1573 (re mathematical models of animal production-biomass ratio)
- (12): 1873 (recovery of Canadian bowhead whale, after previous exploitation)
- T 224 (ringed seal data analysis computer programming).
- 232 (razor clams, Masset beaches, Queen Charlotte Is., & Long Beach, Vancouver Is.)
- 250 (computer programming fish population characterization)
- S 1495 (immature Bay of Fundy herring)
- 1582, 1583 (Derzhavin's biostatistical analysis method for)
- A 184 (dynamics, re exploitation of arctic ringed & harp seals)
- 196 (dynamics, re fisheries biology: book review)
- Porbeagle (*Lamna nasus*)**
- T 261 (bibliography for Gulf of St. Lawrence)
- A 182 (ICNAF Canadian 1969 research summary)
- Porcupinefish (*Diodon hystrix*)**
- J 28(11): 1809 (new record of lymphocystis viral infection, in)
- Porichthys notatus* (see Midshipman, plainfin)
- Porifera (see Sponges)**

- Poronotus triacanthus* (see Butterfish)
- Porphyridium cruentum* (see Algae)
- Porpoise, bottlenose (*Tursiops truncatus*)
S 1575 (body & heart weight, re feeding rate)
- Porpoise, Dall (*Phocoenoides dalli*)
S 1575 (body & heart weight, re feeding rate)
- Porpoise, harbour (*Phocoena phocoena*)
S 1575 (body & heart weight, re feeding rate)
- Porpoise, Pacific white-sided (*Lagenorhynchus obliquidens*)
S 1575 (body & heart weight, re feeding rate)
- Pot (see Trap)
- Potassium derivatives
J 28(2): 171, 203 (in waters of many small NW Ont. lakes)
(2): 277 (in sediments of 16 small NW Ont. lakes)
(5): 625, 635 (level changes in brook trout after handling, anesthetization, & surgery)
- Pout, Atlantic soft (*Melanostigma atlanticum*)
T 261 (bibliography for Gulf of St. Lawrence)
- Pout, ocean (*Macrozoarces americanus*)
J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
(9): 1285 (methylmercury in, N.S. banks)
T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
- Povoledo, Domenico
J 28(2): 277 (surface sediment chemistry of FRB Experimental Lakes, NW Ont.)
(7): 1043 (NTA determination in inland waters)
- Power plants (electrical) (see Nuclear power plant; Thermal power plant)
- Pozar, Dusan Frank
S 1502 (automatic wet-food dispenser)
- Prakash, Anand
B 177 (E Canada paralytic shellfish poisoning)
S 1482 (study of eutrophicated marine basin)
- Prawn (*Pandalus platyceros*) (spot shrimp)
T 221 (taken in B.C. groundfish surveys)
S 1518 (complete biological & economic synopsis)
A 128(F) (experimental trap fishing, B.C.)
- Prawns (see also Shrimps)
T 241 (bibliography: *Pandalus kessleri* & others)
- Precipitation (chemical) (see Flocculating agents; Sediments)
- Precipitation (rain & snow) (see also Climate)
J 28(9): 1285 (mercury ion in)
- Precooking (see Cooking)
- Predation (see also Feed; Parasites)
J 28(1): 65; (5): 771 (sea lamprey on L. Superior trout)
(6): 801, 809, 815 (brook trout, re fish growth efficiency analysis)
(7): 957 (vulnerability of 17 fish species to northern pike)
(9): 1352 (increased predation on coho salmon fry by torrent sculpin on moonlight nights)
(10): 1493 (possible role re Adams R. sockeye salmon population fluctuations)
(10): 1663 (fur seal on Pac. herring, re offshore distribution of latter)
(10): 1503 (pink & chum salmon fry size re predation by coho salmon)
(12): 1921 (Pac. herring on young chinook salmon in a B.C. estuary)
(12): 1847 (effect of experience in, by rainbow trout)
(12): 1877 (re DDT accumulation & persistence in prey & predators)
T 231 (birds on arctic char in a small arctic lake)
S 1490 (history of lamprey invasion of Great Lakes & control measures)
- Prediction (see Forecast)
- Preservatives and preservative treatments (see also Quality of fishery products; also preservative treatments, e.g., Ice; Canning; Drying; Refrigeration; Smoking)
J 28(5): 783 (slime removal from freshwater fishes)
A 203 (for fresh & processed fishery products)
- Preslan, Janet Evelyn
S 1559 (cultural characteristics of pelagic marine hymenostome ciliate)
- Pressure
S 1522 (pressure-jump bomb with optical detection)
- Pressure, hydrostatic (for results of routine oceanographic observations, see Oceanography headings)
- Price, Robert James
J 28(11): 1789 (interaction between paralytic shellfish poison & melanin)

- Primary productivity (see Productivity, primary)
- Prince Edward Island (see also St. Lawrence, Gulf of)
 J 28(1): 59 (DDT residues in smelt & shellfishes)
 B 175 (economic study of oyster fishery)
 T 270 (Atl. salmon catches, 1910-70)
 S 1580 (classification & ordination of many shallow-water benthic samples)
- Prionace glauca* (see Shark, blue)
- Pristane (see also Hydrocarbons)
 S 1591 (in some freshwater & marine fish oils)
- Processing of fish products (see also Canning; Cooking; Drying; Fish protein concentrate; Freshwater fish products; Oils and fats; Refrigeration; Smoking; also names of fishes)
 A 203 (lessening pollution by wastewaters from)
- Proclavellodes pillaii* (see Copepoda)
- Productivity (see also Productivity, primary; Productivity, secondary)
 J 28(2): entire issue (re 463 small lakes in FRB Experimental Lakes Area, NW Ont.)
 (7): 971 (*Sagitta elegans* chaetognath, St. Margaret's Bay, N.S.)
 (9): 1309 (white whale)
 (10): 1573 (production-biomass ratio re animal cohorts & populations; mathematical models)
 (11): 1699 (benthic macroinvertebrates, L. Ontario bays)
 T 231 (potential, of arctic char in a small arctic lake)
 A 189 (assessment methods for fish production in fresh waters)
 197 (of freshwater fishes re their metabolism: review)
 220 (program during C.S.S. *Hudson* oceanographic survey circumnavigating N & S America)
- Productivity, primary (see also Algae; Phytoplankton; Plankton)
 J 28(2): entire issue (re many small lakes in FRB Experimental Lakes Area, NW Ont.)
 (5): 790 (seawater enrichment effect on plankton photosynthesis)
 (6): 911 (re particulate carbon:nitrogen relations, Chesapeake Bay, Md.)
 T 248 (re *Calanus pacificus* copepod secondary marine productivity)
 265, 267 (Frobisher Bay, Baffin Is., N.W.T.)
 S 1466, 1467 (large-scale studies, N Pac. Ocean)
 1513 (re *Calanus* secondary marine productivity)
 1586 (25-hour study of phytoplankton chlorophyll production, Bedford Basin, N.S.)
 A 188 (Saanich Inlet, B.C., marine biology)
 189 (assessment methods for fresh waters)
 211 (re feed availability to different trophic levels in marine feed chain)
- 220 (program during C.S.S. *Hudson* oceanographic survey circumnavigating N & S America)
- Productivity, secondary (see also Feed; Zooplankton; also Production, primary)
 J 28(2): entire issue (re many small lakes in FRB Experimental Lakes Area, NW Ont.)
 (5): 711 (& energy flow of 2 amphipod species, Marion L., B.C.)
 T 248 (*Calanus pacificus* culture & grazing on diatoms, re marine)
 266 (zooplankton data, Frobisher Bay, N.W.T.)
 S 1485 (importance & general implications of organic matter in, particularly re filter-feeding copepods)
 1513 (*Calanus* grazing on diatoms, re marine)
 A 188 (Saanich Inlet, B.C., marine biology)
 189 (assessment methods for fresh waters)
 211 (re feed availability to different trophic levels in marine feed chain)
- Proprioceptors (see Gills)
- Prosopium williamsoni* (see Whitefish, mountain)
 world distribution & parasites (see A 224)
- Protein concentrate, fish (see Fish protein concentrate)
- Proteins (see also Acids, amino; Composition, chemical; Flesh; Muscle)
 J 28(3): 449 (bluegill sunfish protein consumption & nitrogen excretion)
 (4): 606 (content of juvenile coho salmon blood)
 (8): 1113 (calorie-to-protein ratio re brook trout culture)
 (8): 1173 (glycoproteins constituents levels in Pac. salmon, trouts, & bovine blood sera)
 (11): 1745 (muscle & serum of suckers)
 (12): 1853 (classification of coho salmon egg)
 S 1489 (binding affinities of blood proteins for sex hormones & corticosteroids in 3 Atl. fishes)
 1519 (non-destructive determination in marine sediments)
 1521 (of soluble fraction of 5 Pac. salmon species eggs)
 1522 (isomerization kinetics with pressure-jump bomb)
 1545 (electrophoretic analysis of protein systems of Atl. salmon \times brown trout hybrids)
 1561 (stability re sulphhydryl content of rabbit & rainbow trout myosins)
 A 198 (stable (as fish protein concentrate), from the seas)
- Protozoa (see also Ciliata; Dinoflagellates; Flagellates; Phytoplankton; Plankton; Zooplankton)
 A 224 (parasitic to N American, USSR, & European coregonid fishes)
- Prowfish (*Zaprora silenus*)
 T 257 (taken during 1970 B.C. trawl fishery)

- Proximate analysis (see Composition, chemical)
- Psettichthys melanostictus* (see Sole, sand)
- Pseudoactiniscus apentasterias* (see Dinoflagellates)
- Pseudocalanus* (see Copepoda)
- Pseudocycnidae (see Copepoda)
- Pseudomonas* (see Bacteria)
- Pseudopleuronectes americanus* (see Flounder, winter)
- Pseudorca crassidens* (see Whale, false killer)
- Pseudovertilia* (see *Metavertilia*)
- Publications (see Bibliography; also following two headings)
- Publications, lists of (see also next heading)
J 28(10): 1365 (publications by Edith and/or Cyril Berkeley, 1904-68)
- Publications and Reports, Fisheries Research Board of Canada (see also Fisheries Research Board of Canada)
J 28(1): 119; (2): 303; (3): 463; (4): 623; (5): 797; (6): 933; (7): 1067; (8): 1221; (9): 1355; (11): 1821; (12): following index (list of 1971 and some 1970)
R 1969/1970: 149 (list of 1969 & 1970)
MSP 13(F) (FRB studies in Canadian Arctic)
- Puffinus griseus* (see Shearwater, sooty)
- Puget Sound, Washington, USA
J 28(9): 1269, 1275 (estimating Pac. hake populations & density by voltage-integration echo sounding)
- Pulp mill effluents (see also Pollution)
S 1500 (nature & amounts of gases from B.C. coastal water sediments close to pulp mills)
1504 (tracing drift in sea water by continuous turbidity measurement)
A 223 (combating, on Canadian Atl. coast)
- Pumpkinseed (*Lepomis gibbosus*)
J 28(9): 1285 (methylmercury in N.B.)
A 201 (mercury contamination, Great Lakes)
- Pumps
A 203 (for unloading fish from boats)
- Pungitius pungitius* and *Pungitius* complex (see Stickleback, ninespine)
- Purines (see also Acids, nucleic; Inosine; Nucleosides)
J 28(8): 1125 (re Atl. fishes postmortem quality)
S 1523 (lingcod muscle purine & pyrimidine nucleoside phosphorylases)
1524 (lingcod muscle guanine deaminase mechanism & specificity)
- Purpura lapillus* (see Dogwinkle, Atlantic)
- Purvis, Harold Arthur
J 28(4): 616 (giant American brook lampreys in upper Great Lakes)
- Pusa hispida* (see Seal, ringed)
- Putrescine
S 1497, 1498 (metabolism by mycobacteria isolated from fish)
- Pycha, Richard Lawrence
J 28(1): 65 (population biology of L. Superior lake trout)
- Pyloric caeca (see Caeca, pyloric)
- Pyrimidine
S 1523 (lingcod muscle purine & pyrimidine nucleoside phosphorylases)
1525 (trout liver pyrimidine deoxynucleoside phosphorylase & deoxyribosyltransferase)
- Pyrrophyta
J 28(2): 195 (of several small NW Ont. lakes)
S 1491 (ability to cleave phenylalanine aromatic ring)
- Q
- Qadri, Sami Ullah
J 28(4): 465 (lake char postglacial distribution)
(9): 1322 (quantitative sampler for aquatic phytomacrofauna)
- Quahaug, bay (see Quahaug, northern)
- Quahaug, black (see Quahaug, ocean)
- Quahaug, northern (*Mercenaria (Venus) mercenaria*) (bay quahaug; hardshell clam; littleneck clam)
J 28(1): 59 (DDT residues in N.B.)
(3): 379 (dissolved oxygen requirements for embryonic & larval development)
B 177 (re paralytic shellfish poisoning, E Canada)
S 1572 (saturated & isoprenoid fatty acids distribution in lipids)

- Quahaug, ocean (*Arctica (Cyprinus) islandica*) (black quahaug; ocean clam)
 J 28(5): 793 (yellow phosphorus concentration in body, N.S.)
 B 177 (re paralytic shellfish poisoning, E Canada)
- Qualicum River, B.C.
 J 28(5): 647 (results for 3 generations from pink salmon eggs transplanted to)
- Quality of fishery products
 J 28(4): 509 (attractiveness of brook trout skin & flesh colour enhanced by feeding shrimp waste)
 (5): 643 (killing *Salmonella* bacteria by ^{60}Co irradiation during lake whitefish smoking)
 (5): 783 (beneficial effects of washing slime off freshwater fish)
 (6): 869 (octopine in muscle as possible index of sea scallop freshness)
 (8): 1125 (muscle inosine phosphate degradation re)
 (8): 1217 (re ultrasonic method for distinguishing thawed frozen fish from fresh fish)
 B 178 (condition of raft-cultured Pac. oysters in B.C.)
 CHN 39 (determination of isopropanol residues in fish protein concentrates)
 T 165(F) (muddy odour of rainbow trout)
 220 (effects of storing sockeye salmon in ice vs. refrigerated sea water, on firmness, colour, etc. of canned product)
 242 (as for T 220 above, using salt-fortified sea water; also effects of mishandling)
 S 1460 (bacterial spoilage of halibut re pre-irradiation quality)
 A 203 (progress in seafoods sanitation; also colour, odours, etc.)
 230 (ecosystems, pollution, etc., re a northern environment as sources of fishery & other foods for man)
- Quay, Wilbur Brooks
 S 1574 (fin whale nasal structure)
- Quayle, Daniel Branch
 B 178 (B.C. Pac. oyster raft culture)
 T 232 (breeding and growth of razor clams in B.C.)
- Quebec (see also St. Lawrence, Gulf of)
 T 270 (Atl. salmon catches, 1947-69)
- Queen Charlotte Islands, B.C.
 T 232 (razor clam breeding & growth, Masset beaches)
- Queen Charlotte Sound, B.C. (see also Oceanography, Pacific east coast)
 T 259 (rock sole fishery landings, 1959-69)
- Quinones
 S 1480 (isoprenoid quinone composition re tocopherol & vitamin K in unicellular red alga)
- Quinte, Bay of, Lake Ontario
 J 28(11): 1683 (benthic macroinvertebrates associations & species diversity)
 (11): 1699 (macroinvertebrate production)
 (11): 1715 (macroinvertebrate community metabolism)
- Qureshi, Mohiy-ud-Din
 J 28(8): 1173 (Pac. salmon glycoprotein constituents)
- R**
- Rabbit
 S 1509 (accelerated denaturation of muscle myosin in frozen solution)
 1561 (sulphydryl content of myosins re protein stability)
- Rabin, Harvey
 A 180 (gaffkemia bacterial disease of lobsters)
- Radiation, solar (see also Irradiation; Light, reactions to; Photosynthesis)
 J 28(2): 157 (solar penetration regime in certain lakes of Experimental Lakes Area, NW Ont.)
 A 233 (solar, as primary energy source of ecosystems)
- Radiation, X-ray (see X-rays)
- Radioactivity; Radioactive isotopes (see also Irradiation)
 A 232 (in the marine environment & biological effects of: extensive summary of book)
- Radionuclides (see Radioactivity; also names of elements)
- Raft
 B 178 (culture of Pac. oyster in B.C.)
- Ragfish (*Icosteus aenigmaticus*)
 T 221 (taken in B.C. groundfish surveys)
- Rain (see Climate; Precipitation)
- Raja binoculata* (see Skate, big (Pacific))
erinacea (see Skate, little)
inornata (see Skate, California)
kincaidi (see Skate, black)
laevis (see Skate, barndoor)
ocellata (see Skate, winter)
radiata (see Skate, thorny)
rhina (see Skate, longnose)
senta (see Skate, smooth)
stellulata (see Skate, starry)
- Range (see Distribution; Species, new records or range extensions of)
- Rat
 J 28(6): 843 (retention of zinc from oysters)

- (11): 1793 (see T 229 below)
 T 229 (tests for heart & liver fat deposition when fed raw & partially hydrogenated Atl. herring oil)
- Ratfish (*Hydrolagus coliei*)
 T 210, 221 (taken during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in 1970 B.C. trawl fishery)
- Rations (see also Culture; Feed; Feedstuff; Hatcheries; Metabolism; Starvation)
 J 28(6): 801, 809, 815 (levels re fish growth efficiency analysis)
 (8): 1113 (calorie-to-protein ratio for brook trout)
 (8): 1185 (bacterial counts of commercial fish diets)
 (10): 1635 (young sockeye salmon growth responses to different diets & nutrition planes) (for tank-cultured sablefish)
 T 243 (zooplankton, re marine productivity)
 248 (zooplankton, re marine productivity)
 S 1513 (zooplankton, re marine productivity)
- Raven, sea (*Hemitripterus americanus*)
 J 28(4): 491 (cardiac & respiratory responses to hypoxia)
 (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length range)
 (9): 1285 (methylmercury in, N.S. banks)
 T 225 (associated with Bay of Fundy scallop beds)
 226 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
 272 (halogenated hydrocarbon residues detected in)
 S 1550 (gill proprioceptors)
- Ray, Pacific electric (*Torpedo californica*)
 T 257 (taken during 1970 B.C. trawl fishery)
- Rearing (see Culture; Hatcheries)
- Recovery (see Disease; Survival)
- Recruitment (see also Mortality; Population; Stock)
 J 28(10): 1666 (re population biostatistical analysis)
 T 256 (effects of recent, on Georges Bank scallop fishery landed meat size)
 A 206 (ICNAF forecast re haddock for 1970-72)
- "Red water"
 J 28(3): 391 (*Mesodinium rubrum* incomplete symbionts, ultrastructure, taxonomy)
- Redfish (*Sebastes marinus* (*mentella*)) (ocean perch)
 J 28(1): 1 (amine production in stored frozen muscle)
 (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
 (8): 1125 (purines changes in iced fillets) (associated with Bay of Fundy scallop beds) (standing crop, availability, lengths, weights, etc., from Scotian Shelf surveys, 1958-68) (bibliography for Gulf of St. Lawrence) (halogenated hydrocarbon residues detected in)
 A 179(F) (distinction between *S. marinus marinus* & *S. marinus mentella*; biology & fishery of latter)
 181, 182 (ICNAF 1969 Canadian research summaries)
 194, 195 (Nfld. & Labrador fisheries)
- Redhorse, northern (see Redhorse, shorthead)
- Redhorse, shorthead (*Moxostoma macrolepidotum*) (northern redhorse)
 J 28(1): 105 (DDT residues in muscle of Saskatchewan R.)
- Reduction (see Fishmeal; Oils and Fats)
- Reeves, Jerry Edwin
 J 28(9): 1275 (estimation of hake population by echo integrator)
- Reflex, conditioned (see Behaviour)
- Refrigeration (see also Chilling; Freezing; Ice; Sea water, refrigerated; Superchilling)
 J 28(1): 1 (dimethylamine & other amine formation in stored frozen muscle of various Atl. coast fishes)
 S 1461 (thermistor readout monitoring system for temperatures)
 1473 (portable holding unit for iced fish)
 A 225 (resume of S 1473 above)
- Regier, Lloyd Wesley
 J 28(3): 305 (haddock fillets bacteria)
 (4): 509 (brook trout pigmentation)
 (7): 1055 (distillation of fluoride in soils)
 CHN 39 (extraction of isopropanol in fish protein concentrates)
 S 1412 (fluoride content of FPC & raw fish)
 1505 (fluoride in polluted waters)
- Reinhardtius hippoglossoides* (see Halibut, Greenland)
- Reish, Donald James
 J 28(10): 1459 (seasonal settlement of polychaetous annelids)
- Relict species (see Species, relict)

- Reproduction (*see also* Courtship; Fecundity; Fertilization; Mating; Maturity; Spawning)
- J 28(3): 417 (patterns of Pacific ocean perch re bathymetric distribution & seasonal abundance)
- (5): 755 (observation of whelping colony of harbour seals, Sable Is., N.S.)
- (9): 1309 (white whale, Cumberland Sound, Baffin Is., N.W.T.)
- T 235 (agonistic behaviour re lobster mating)
- S 1582, 1583 (mathematical comparison of 2 reproduction curves)
- 1590 : 552 (of fishes re temperature: review)
- A 179(F) (redfish)
- 184 (harp & ringed seal)
- Research vessel operations (*see* Vessels, research)
- Respiration (*see also* Activity; Blood; Gills; Hemoglobin; Oxygen, dissolved; Respirometer; Stress)
- J 28(1): 73 (*Hedriodiscus truquii* diptera larvae)
- (1): 95 (re tail growth in embryo big skate)
- (3): 379 (oxygen requirements for northern quahaug early development)
- (4): 491 (responses to hypoxia in sea raven)
- (5): 625, 635 (physiological effects of handling, anesthetization, & surgery of brook trout)
- (7): 947 (blood-pressure drop in teleost gills, re blood pathway)
- (8): 1119 (chronic effects of low oxygen concentrations on fathead minnow)
- (9): 1342 (measuring respiratory quotient of *Tilapia mossambica*)
- (10): 1609 (rainbow trout circulatory & ventilatory responses to artificial manipulation of gills)
- (12): 1823 (handling & salinity effects on striped bass oxygen requirements)
- (12): 1907 (factors affecting rates, in winter flounder)
- S 1550 (re Atl. sea raven gill proprioceptors)
- 1554 (rainbow trout respiratory pumps responses to hypoxia)
- A 197 (oxygen consumption re metabolic activities of fish: review)
- Respirometer (*see also* Respiration)
- J 28(1): 73 (for insect larval respiration rate)
- Retrieval, information (*see also* Bibliographies; Indexes)
- T 209 (storage & retrieval of indexed & annotated bibliographical references)
- Review papers and articles (*see also* Bibliographies)
- J 28(3): 391 (ultrastructure of red-water ciliate *Mesodinium rubrum*; *Mesodinium* taxonomy & key)
- (10): 1583 (radioisotope X-ray fluorescent spectroscopy in aquatic biology)
- AR 1970 (FRB Annual Report, with research highlights)
- R 1969/1970 (FRB (biennial) Review)
- T 272 (halogenated hydrocarbons industrial uses re effects on environment)
- S 1487 (diseases & other effects of parasitization on fishes)
- 1510 (utilizing & applying bioassay results re pollutants toxicities towards fish)
- 1590 (temperature effects on living Fishes)
- A 197 (metabolism & biological production in fish)
- 212 (energy cost of living, for fish)
- 215 (fishery by-products technology)
- Reviews of books
- A 186 (fish infectious diseases & control)
- 196 (fisheries biology; a study in population dynamics)
- 210 (seawater analysis methods)
- 228 (Jakob Danielson, Greenlandic painter)
- 229 (aging mammals by teeth & bone layering)
- Revival
- S 1590 : 533 (of fishes after supercooling: review)
- Reynolds, James B.
- J 28(1): 102 (bathythermograph transect data plotting)
- Rhabdochona* (nematodes)
- J 28(10): 1645 (*R. canadensis* new species; 5 other species described; systematics; key to genus; distribution in N & Central America)
- Rhacochilus vacca* (*see* Perch, pile)
- Rhinichthys atratulus* (*see* Dace, blacknose)
- cataractae* (*see* Dace, longnose)
- Rhodophyceae (red seaweeds) (*see* Algae; Dulse; Seaweeds)
- Rhodymenia palmata* (*see* Dulse)
- pertusa* (*see* Seaweeds)
- Ribonuclease (*see* Enzymes)
- Ribonucleic acid (*see* Acids, nucleic)
- Ribonucleotides (*see* Nucleosides)
- Ricard, Michel
- T 202(F) (diatoms as indicators of mine pollution)
- Richibucto, N.B.
- J 28(1): 59 (DDT residues in marine fishes & shell-fishes)
- Ricker, William Edwin
- J 28(10): 1666 (biostatistical population analysis)
- S 1582 (Derzhavin's biostatistical method)
- 1583 (comparison of 2 reproduction curves)
- A 189 (assessment of freshwater fish production)

- Ridgway, George J.
J 28(1): 15 (isozyme polymorphisms in American lobsters)
- Ringrose, Richard Caig
J 28(8): 1113 (calorie/protein ratio for brook trout)
- RNA (ribonucleic acid) (*see* Acids, nucleic; Nucleosides)
- Roach, Stewart Williard
T 220, 242 (storage of Pac. salmon at sea)
- Roberts-Pichette, Patricia
S 1553 (effects of mining pollution on Miramichi R. plants)
- Robins, Geoffrey Lewis
J 28(6): 861 (effects of feeding level on scales of young salmon)
(11): 1757 (response of young salmon to starvation periods)
(11): 1757 (effect of starvation on scales of salmon)
- Robinson, Douglas Grant
J 28(9): 1345 (anomalous occurrence of carp in marine environment)
- Roccus* (*see* *Morone*)
- Rockfish, aurora (*Sebastes (Sebastodes) aurora*)
J 28(6): 903 (habitat of a blood fluke species in)
T 221 (catches during B.C. groundfish surveys)
- Rockfish, black (*Sebastes (Sebastodes) melanops*)
J 28(6): 903 (habitat of 2 blood fluke species in)
T 246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, blackbanded (*see* Rockfish, tiger)
- Rockfish, blackblotched (*see* Rockfish, darkblotched)
- Rockfish, blackmouth (*see* Rockfish, darkblotched)
- Rockfish, blackthroat (*see* Rockfish, rougheye)
- Rockfish, blue (*Sebastes (Sebastodes) mystinus*)
T 246 (bibliography)
- Rockfish, canary (*Sebastes (Sebastodes) pinniger*) (orange rockfish)
J 28(6): 903 (habitat of 2 blood fluke species in)
T 246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
269 (catches during B.C. groundfish survey, 1971)
- Rockfish, copper (*Sebastes (Sebastodes) caurinus*)
J 28(6): 903 (habitat of 2 blood fluke species in)
(10): 1563 (host of a new copepod species)
T 246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, darkblotched (*Sebastes (Sebastodes) crameri*) (blackblotched or blackmouth rockfish)
J 28(6): 903 (habitat of a blood fluke species in)
T 210, 221 (taken during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, flag (*Sebastes (Sebastodes) rubrivinctus*)
T 210, 221, 269 (taken during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, greenstriped (*Sebastes (Sebastodes) elongatus*)
T 221, 269 (catches during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, longspine channel (*see* Thornyhead, longspine)
- Rockfish, northern (*Sebastes (Sebastodes) polyspinis*)
J 28(10): 1621 (taxonomy, distribution & biology)
T 246 (bibliography)
- Rockfish, orange (*see* Rockfish, canary)
- Rockfish, quillback (*Sebastes (Sebastodes) maliger*)
J 28(6): 903 (habitat of 2 blood fluke species in)
T 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, redstripe (*Sebastes (Sebastodes) proriger*)
J 28(6): 903 (habitat of a blood fluke species in)
T 210, 221, 269 (taken during B.C. groundfish surveys)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, rosethorn (*Sebastes (Sebastodes) helvomaculatus*)
J 28(6): 903 (habitat of a blood fluke species in)
T 221 (taken during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, rougheye (*Sebastes (Sebastodes) aleutianus*)
T 221 (catches during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Rockfish, sharpchin (*Sebastes (Sebastodes) zacentrus*)
J 28(6): 903 (habitat of a blood fluke species in)
T 221 (taken during B.C. groundfish surveys)
246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)

- Rockfish, shorttraker (*Sebastes (Sebastodes) caenaeamaticus*)
 T 221 (taken during B.C. groundfish surveys)
 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, shortspine channel (see Thornyhead, short-spine)
- Rockfish, silvergray (*Sebastes (Sebastodes) brevispinis*)
 J 28(6): 903 (habitat of a blood fluke species in)
 T 221, 269 (taken during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, spinycheeked (see Thornyhead, shortspine)
- Rockfish, splitnose (*Sebastes (Sebastodes) diploproa*)
 J 28(6): 903 (habitat of a blood fluke species in)
 T 221 (taken during B.C. ground fish surveys)
 246 (bibliography)
 257 (taken during B.C. trawl fishery, 1970)
- Rockfish, stripetail (*Sebastes (Sebastodes) saxicola*)
 T 221 (catches during B.C. groundfish surveys)
 246 (bibliography)
- Rockfish, tiger (*Sebastes (Sebastodes) nigrocinctus*) (blackbanded rockfish)
 J 28(6): 903 (habitat of a blood fluke species in)
 T 246 (bibliography)
- Rockfish, vermilion (*Sebastes (Sebastodes) miniatus*)
 T 246 (bibliography)
- Rockfish, widow (*Sebastes (Sebastodes) entomelas*)
 T 210, 221, 269 (catches during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, yelloweye (*Sebastes ruberrimus*) (red snapper)
 T 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, yellowmouth (*Sebastes (Sebastodes) reedi*)
 T 221, 269 (taken during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in B.C. trawl fishery, 1970)
- Rockfish, yellowtail (*Sebastes (Sebastodes) flavidus*)
 J 28(6): 903 (habitat of 2 blood fluke species in)
 T 210, 221, 269 (taken during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in B.C. trawl fishery, 1970)
- Rockfishes (*Sebastes* (formerly *Sebastodes*)) (see also names of species)
 J 28(6): 903 (incidence & habitat of 2 blood fluke species in, re habitat of the fish species)
 T 210, 221, 269 (taken during B.C. groundfish surveys)
 216 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969)
 246 (bibliography of N America Pac. coast)
 257 (taken in B.C. trawl fishery, 1970)
- Rockling, fourbeard (*Enchelyopus cimbrius*)
 J 28(7): 935 (summer periodic component of Passamaquoddy Bay fish communities, N.D.; length frequencies)
 T 261 (bibliography for Gulf of St. Lawrence)
- Roelofs, Eugene Woodrow
 J 28(4): 610 (concentrations of dieldrin in blood & brain of green sunfish at death)
- Romilly, Mervyn J.
 S 1480 (composition of a unicellular red alga)
- Ronald, Alexander Pollock
 S 1563 (trout hemoglobins)
 1571 (molecular basis for multiplicity of Pac. salmon hemoglobins)
- Roseau River, Man.
 J 28(6): 919 (temperature & light effects on prespawning brook sticklebacks)
- Rotifera (see also Plankton; Zooplankton)
 J 28(2): 245 (vertical distribution & seasonal abundance in 2 small shallow NW Ont. lakes)
 (4): 559 (seasonal calorific values, from 3 small E Ont. lakes)
- Roundworms (see Nematoda)
- Roy, Joan Elaine
 S 1523 (fish muscle phosphorylases)
 1524 (mechanism & specificity of guanine deaminase)
 1525 (fish liver enzymes)
- Roy, Kenneth L.
 S 1524 (mechanism & specificity of guanine deaminase)
- Royer, Leroy Merne
 J 28(1): 105 (residues of DDT, DDE, & DDD in Saskatchewan R. fish)
- Rudderfish, banded (*Seriola zonata*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Ruggieri, George Daniel
 J 28(8): 1208 (killifish "hemagglutinogens")
- Runner, blue (*Caranx crysos*)
 T 261 (bibliography for Gulf of St. Lawrence)

S

Saanich Inlet, Vancouver Island, B.C.
 A 188 (marine biology)
 211 (feed chain)

Sable Island, N.S.
 J 28(5): 755 (observations on whelping Atl. harbour seal colony)

- Sablefish (*Anoplopoma fimbria*) (black cod)
 J 28(10): 1629 (first record of marine fish spontaneous furunculosis)
 T 210, 221, 269 (taken during B.C. groundfish surveys)
 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969)
 243 (culture progress, 1970)
 246 (bibliography)
- Saccharides
 S 1530, 1548 (*Rhodymenia pertusa* seaweed cell-wall glucan chemical structure)
 1585 (amylopectin accumulation in *Clostridium botulinum*)
- Saether, Ole Anton
 S 1532 (distribution of invertebrates)
 1533 (chironomids & other invertebrates)
 1536 (deformed larvae in Canadian lakes)
 1588 (nomenclature & phylogeny of genus *Harnischia*)
- Safe, Lorna Margaret
 S 1459 (new marine sterol)
- Sagavanirktok River system, Alaska
 J 28(1): 115 (meristic differences between anadromous & freshwater-resident arctic char)
- Sagitta* (see Chaetognatha)
- Saha, Jadu Gopal
 J 28(1): 105 (residues of DDT, DDE, & DDD in Saskatchewan R. fish)
- Saito, Akira
 J 28(4): 509 (brook trout pigmentation)
- Sakagawa, Gary Toshio
 J 28(1): 65 (population biology of L. Superior lake trout)
- Sakamoto, Mitsuru
 J 28(2): 203 (phytoplankton production control in FRB Experimental Lakes, NW Ont.)
- Salamanders
 J 28(1): 49 (size, structure, & distributional patterns of *Taricha granulosa* & *Ambystoma gracile* populations in Marion L., B.C.)
 T 258 (toxicity tests of trisodium nitrilotriacetate detergent on larvae, re pollution)
 A 201 (mercury contamination, L. St. Clair, Ont.)
- Salinity (see also Chloride; Chlorinity; Oceanography; Salinity, reactions to) (Note: The numerous data for salinity of sea waters routine observations are not indexed unless having special significance)
- T 152 (computer programming salinity-temperature-pressure oceanographic data)
 219 (regime in St. Margaret's Bay, N.S.)
 S 1542 (& temperatures in E Nfld. waters)
- Salinity, reactions to
 J 28(3): 343 (re pre-smolt coho salmon survival & growth)
 (4): 527 (re upper lethal temperatures for ribbed mussel)
 (5): 727 (re petrale sole embryonic development)
 (6): 883 (effects on Pac. cod egg development re geographical distribution)
 (8): 1071 (*Clostridium botulinum* re toxin production in fish flesh)
 (9): 1345 (ability of carp to migrate through brackish B.C. coastal waters)
 (10): 1545 (effects on Pac. herring early development)
 (12): 1823 (effects on striped bass oxygen requirements)
 S 1590 : 520 (re fishes temperature tolerance)
- Salmo aguabonito aguabonito* (see Trout, golden)
aguabonito gilberti (see Trout, Kern River)
clarki (see Trout, cutthroat)
clarki clarki (see Trout, coastal cutthroat)
clarki henshawi (see Trout, Heenan Lake)
gairdneri (see Trout, rainbow; Trout, steelhead)
gairdneri gilberti (see Trout, Kern River)
irideus (see Trout, rainbow (*Salmo irideus*))
mykiss aguabonito (see Trout, golden)
roosevelti (see Trout, golden)
rosei (see Hybridization)
salar (see Salmon, Atlantic; Salmon, Atlantic landlocked)
trutta (see Trout, brown)
whitei (see Trout, Kern River)
- Salmon (Pacific, in general) (see also Salmon, chinook; Salmon, chum; Salmon, coho; Salmon, pink; Salmon, sockeye; also Kokanee; Trout, steelhead)
 J 28(4): 573 (device for enumerating migrating fry)
 T 215 (photoelectric fry counter)
 S 1502 (automatic wet-feed dispenser for fry)
 1521 (proteins of soluble fraction of eggs of 5 species)
 1571 (polypeptides re molecular basis for multiplicity of hemoglobins)
 A 203 (handling for processing; flesh colour enhancement)
 204 (& steelhead trout: INPFC studies, 1965)
 214 (hormones to delay sexual maturity, as an advantage in fish farming to allow greater growth)
- Salmon, Atlantic (*Salmo salar*) (see also Salmon, Atlantic landlocked)

Abbreviations: J — Journal, B — Bulletin, AR — Annual Report, R — Review, Circular Series: CHN — Halifax; CNG — Nanaimo; CJ — St. John's, T — Technical Reports, MSP — Miscellaneous Special Publications, S — Studies, A — Interpretive Articles.

- J 28(1): 59 (DDT residues in N.B.)
 (3): 351 (from Miramichi R., N.B.: relative utilization rates by Miramichi sport fishery vs. maritime commercial fisheries)
 (4): 565 (olfactory epithelium electrical responses)
 (5): 764 (fecundity in 2 Maine rivers)
 (7): 947 (blood pathway effects on blood-pressure drop in gills)
 (9): 1285 (trimethylmercury in N.B. fresh water)
 T 217 (characterization of petroleum oils in spills causing pollutant toxicity to)
 226 (grilse mortalities from *Aeromonas liquefaciens* bacteria disease, NW Miramichi R., N.B.)
 261 (bibliography for Gulf of St. Lawrence)
 270 (digest of Canadian catches by provinces 1910-70; by provincial fishery districts 1950-69; by months 1947-69; by gear types; by angling 1952-70)
 272 (halogenated hydrocarbon residues detected in)
 S 1477 (identification & distribution of Leydig cell homolog in testis)
 1489 (binding affinities of blood proteins for sex hormones & corticosteroids in)
 1502 (automatic wet-feed dispenser for fry)
 1545 (electrophoretic analysis of protein & esterase systems of hybrids with brown trout)
 1552 (decrease of DDT residues in parr after N.B. forest spraying)
 1556 (temperature effects on brain tissue oxygen consumption)
 1562 (major androgens in testicular & peripheral plasma of sexually maturing)
 1569 (determination of residual fuel oil contamination in)
 A 181, 182 (ICNAF 1969 Canadian research summaries)
 192 (recent marine fishery developments; effect of W Greenland fishery on Canadian fishery) (Nfld. fishery)
 194 (Nfld. fishery)
 202, 205 (summaries of A 192 above)
 214 (hormones to delay sexual maturity, as an advantage in fish farming to allow greater growth)
 222 (effects of pollutants on physiology & behaviour)
 Salmon, Atlantic landlocked (*Salmo salar* (sebago)) (lake salmon; ouananiche; sebago salmon)
 J 28(4): 505 (histology of adrenal-cortical cells of hatchery vs. wild)
 (4): 537 (jaw tagging effects on growth & scale characteristics)
 Salmon, chinook (*Oncorhynchus tshawytscha*) (see also Salmon (Pacific, in general))
 J 28(4): 517 (first vibriosis records in Canadian cultured; correction on J 28(8): 1219)
 (5): 745 (egg fertilization by frozen sperm plus extenders)
 (8): 1173 (glycoprotein constituents levels in blood sera)
 (11): 1739 (susceptibility of young to *columnaris* disease)
 (12): 1921 (predation of young by Pac. herring) (production by U.S. hatcheries)
 CNG 90 (taken during B.C. groundfish surveys)
 T 210 (size, feed, etc., taken in B.C. offshore herring surveys)
 213
 S 1508 (purification & properties of testes acid deoxyribonuclease)
 1535 (gonadotropin effect on hypophysectomized & gonadectomized female guppy sexual behaviour)
 1571 (polypeptides re molecular basis for multiplicity of hemoglobins)
 Salmon, chum (*Oncorhynchus keta*) (see also Salmon (Pacific, in general))
 J 28(4): 517 (first vibriosis records in Canadian cultured; correction on J 28(8): 1219)
 (10): 1629 (first spontaneous furunculosis record in marine environment of)
 (10): 1503 (fry size re predation by coho salmon)
 (10): 1511 (bacterial flora associated with surface of stream-incubating eggs, re egg mortality)
 T 213 (size, feed, etc., taken during B.C. offshore herring surveys)
 S 1571 (polypeptides re molecular basis for hemoglobins multiplicity)
 A 211 (re feed availability to different trophic levels in marine feed chain)
 Salmon, coho (*Oncorhynchus kisutch*) (see also Salmon (Pacific, in general))
 J 28(3): 343 (salinity effects on pre-smolt survival & growth)
 (4): 533 (fish ladder role in transmitting *columnaris* disease, Columbia R.)
 (4): 606 (blood chemistry values for juvenile)
 (5): 745 (egg fertilization by frozen sperm plus extenders)
 (8): 1173 (glycoprotein constituents levels in blood sera)
 (9): 1253 (antibody production & immunity responses to *columnaris* disease)
 (10): 1503 (chum & pink salmon fry size re predation by)
 (12): 1899 (stresses caused by formalin disinfection of young)
 (12): 1853 (egg proteins classification)
 CNG 90 (production by U.S. hatcheries)
 T 200 (X-ray spectrometric analysis for discrimination from different geographic areas)
 210 (taken during B.C. groundfish surveys)
 272 (halogenated hydrocarbon residues detected in L. Michigan)
 S 1571 (polypeptides re molecular basis for multiplicity of hemoglobins)
 A 200, 201 (mercury contamination, Great Lakes)
 Salmon, landlocked (see Kokanee; Salmon, Atlantic landlocked)

- Salmon, pink (*Oncorhynchus gorbuscha*) (see also Salmon (Pacific, in general))
- J 28(4): 517 (first vibriosis records in Canadian cultured; correction on J 28(8): 1219)
- (5): 647 (results for 3 generations from transplants of eggs to Qualicum R., B.C.)
- (6): 821 (gillnet selectivity re Skeena R. fishery, B.C.)
- (10): 1503 (fry size re predation by coho salmon)
- (10): 1511 (bacterial flora associated with surface of stream-incubating eggs, re egg mortality)
- T 213 (size, feed, etc., taken in B.C. offshore herring surveys)
- 234 (data & computations for racial analysis of N American, on basis of scale characteristics)
- S 1571 (polypeptides re molecular basis for multiplicity of hemoglobins)
- A 181 (research summary on progress of B.C. transplants to Nfld.)
- 211 (egg culture, also feed availability for young re different trophic levels in feed chain)
- Salmon, sockeye (*Oncorhynchus nerka*) (see also Salmon (Pacific, in general); also Kokanee)
- J 28(1): 110 (rate of alevin evacuation from stomach of mountain whitefish)
- (3): 369 (X-ray spectrometry & multivariate analysis for chemical element composition as indicator of geographic origin)
- (3): 409 (satiation time, appetite, & maximum feed intake)
- (4): 477, 485 (hormones & cortisol histological effects on various tissues of gonadectomized)
- (4): 513 (hypothesis for alternation in age of return of successive generations of Skeena R.)
- (4): 517 (first vibriosis records in Canadian cultured; correction on J 28(8): 1219)
- (6): 821 (gillnet selectivity re Skeena R. fishery, B.C.)
- (6): 861 (feeding level effects on scale circulus formation, also on fish length & weight)
- (8): 1173 (glycoproteins constituents levels in blood sera)
- (9): 1269 (integrated echo voltage re echo sounding for)
- (9): 1319 (perception of polarized light by yearlings, re seaward migration)
- (10): 1603 (ribonucleotide reductase in testes of immature)
- (10): 1493 (Adams R., B.C.: abundance pattern since 1938 re year-classes dominance)
- (10): 1629 (first spontaneous furunculosis record in marine environment for)
- (10): 1635 (growth responses of young to different diets & nutrition planes)
- (11): 1749, 1757 (response of young after starvation periods; effects on scale growth)
- T 200 (analysis of data from J 28(3): 369 reference above)
- 220 (effects of storage in ice vs. refrigerated sea water, on quality of canned product)
- 223 (data & computations for racial analysis of N American, on basis of scale characteristics)
- 242 (as for T 220 above, using salt-fortified sea water; also effects of mishandling)
- S 1560 (deoxyribonucleic acid polymerase from immature testes)
- 1571 (polypeptides re molecular basis for multiplicity of hemoglobins)
- A 212 (energy requirements for living, feeding, & migrating: review)
- Salmon, steelhead (see Trout, rainbow; Trout, steelhead)
- Salmons (general) (see Salmon (Pacific, in general))
- Salmonella (see also Bacteria)
- J 28(5): 643 (gamma irradiation effects on, in smoked lake whitefish)
- (8): 1185 (bacteria counts in commercial fish diets)
- Salmonidae (see also Char; Cisco; Dolly Varden; Grayling; Kokanee; Salmon; Trout; Whitefish)
- J 28(5): 781 (improved vascular catheterization procedure)
- S 1502 (automatic wet-feed dispenser for fry culture)
- Salvelinus alpinus (see Char, arctic)
- fontinalis (see Trout, brook)
- malma (see Dolly Varden)
- namaycush (see Trout, lake)
- Sameoto, Douglas Daniel
- J 28(7): 971 (*Sagitta elegans* life history)
- T 252 (herring along S.N.S. coast)
- S 1482 (study of eutrophicated marine basin)
- Sammons, James Ira, III
- J 28(7): 1053 (tetrazolium oxidase in N Atl. tuna)
- Sampling
- J 28(1): 113 (fish muscle for residues of applied anesthetics)
- (3): 365 (shallow-water benthos by simple corer vs. Ekman grab)
- (4): 573 (device for enumerating migrating kokanee fry)
- (6): 849 (minute benthos & substrate materials in shallow streams)
- (7): 1049 (interstitial water in intertidal mud)
- (8): 1203 (technique for muscle from living fish)
- (9): 1322 (quantitative sampler for aquatic phytomacrofauna)
- T 252 (plankton at high speed)

- 256 (commercial scallop landings)
- Sand dollar (*Echinarachnis parma*)
- T 225 (associated with Bay of Fundy scallop beds)
- Sand lances; sand launces (*see* Lance)
- Sanddab, mottled (*see* Sanddab, Pacific)
- Sanddab, Pacific (*Citharichthys sordidus*) (mottled sanddab)
- T 246 (bibliography)
- 257 (taken in 1970 B.C. trawl fishery)
- Sanddab, speckled (*Citharichthys stigmaeus*)
- T 246 (bibliography)
- Sandeman, Edward John
- A 179(F) (redfish habitat, reproduction, & fishery)
- Sanders, Herman Otto
- J 28(5): 705 (pesticide accumulation in invertebrates)
- Sandfish, Pacific (*Trichodon trichodon*)
- T 257 (taken during 1970 B.C. trawl fishery)
- Sandworm (*Nereis virens*)
- J 28(9): 1225 (cadmium toxicity tests)
- Sangalang, Gloria Josefina Balolong
- S 1479 (in-vitro steroidogenesis in yellow bodies of American Atl. sturgeon)
- 1562 (stages of sexual development in Atl. salmon)
- 1576 (hormonal steroids in sturgeon plasma)
- Sanitation (*see also* Quality of fishery products)
- J 28(5): 783 (effects of washing slime off freshwater fish on keeping quality)
- A 203 (progress in, re seafoods quality)
- Sarcoma (*see* Tumors)
- Sarda sarda* (*see* Bonito, Atlantic)
- Sardine (*see also* Herring, Atlantic)
- A 208 (origin of N.B. "sardine" herring)
- Sarot, Daniel Arthur
- J 28(1): 47 (erythropoiesis in *Trichogaster trichopterus*)
- Saskatchewan River, Sask.
- J 28(1): 105 (DDT residues in fishes muscle)
- A 200 (mercury contamination of fishes in river system)
- Sauger (*Stizostedion canadense*)
- J 28(1): 105 (DDT residues in muscle, of Saskatchewan R.)
- Saunders, Claud Richard
- J 28(5): 705 (pesticide accumulation in invertebrates)
- Saunders, Richard Lee
- J 28(4): 491 (hypoxic responses in the sea raven)
- S 1550 (proprioceptors in gills of teleosts)
- 1554 (responses of respiratory pumps to hypoxia in rainbow trout)
- Saury, Atlantic (*Scomberesox saurus*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Savan, Milton
- J 28(7): 1064 (infectious pancreatic virus in brook trout)
- Savitz, Jan
- J 28(3): 449 (nitrogen excretion and protein consumption of the bluegill sunfish)
- Saxidomus giganteus* (*see* Clam, butter)
- Scad, bigeye (*Selar crumenophthalmus*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Scales, fish
- J 28(4): 537 (jaw tagging effects on landlocked Atl. salmon scale characteristics)
- (5): 749 (arctic grayling lateral line scale counts re N American origin)
- (6): 861 (sockeye salmon feeding level effects on circulus formation)
- (7): 987 (lateral series counts re systematics & evolution of western N America *Salmo* species & subspecies)
- (11): 1749, 1757 (effect on growth, of young sockeye salmon after starvation periods)
- CNG 91 (re rainbow trout anglers' catches, Vancouver Is.)
- T 223 (data & computations for N American sockeye salmon racial analysis from scale characteristics)
- 234 (as for T 223 above, for pink salmon)
- Scallop, giant (Atlantic) (*see* Scallop, sea)
- Scallop, giant sea (Pacific) (*see* Scallop, weathervane)
- Scallop, sea (*Placopecten magellanicus*) (giant scallop)
- J 28(1): 59 (DDT residues in N.B.)
- (6): 869 (octopine formation in stored adductor muscle as possible freshness index)
- (9): 1285 (methylmercury in, N.S. banks)
- B 177 (re paralytic shellfish poisoning, E Canada)
- T 225 (fauna associated with Bay of Fundy scallop beds)
- 256 (effects of recent recruitment on landed meat sizes of Georges Bank scallop fishery, 1970)
- S 1459 (new sterol type (C₂₆) isolated from muscle)
- 1506 (identification of various muscle sterols)
- A 182 (ICNAF Canadian 1969 research summary)
- Scallop, weathervane (*Patinopecten caurinus*) (giant sea scallop)

- J 28(4): 608 (Alaskan hermaphroditic specimen)
(9): 1335 (age & growth, Strait of Georgia & outer Washington coast)
- Scaphopoda (see also Mollusca)
T 225 (associated with Bay of Fundy scallop beds)
- Scarratt, David Johnson
J 28(11): 1733 (productivity of seaweed-lobster communities)
- Scherer, Eberhard
J 28(9): 1303 (photic behaviour of walleye)
- Schindler, David William
J 28(2): 139 (geography & bathymetry of selected basins of FRB Experimental Lakes, NW Ont.)
(2): 157 (light, temperature, & oxygen regimes of selected FRB Experimental Lakes, NW Ont.)
(2): 171 (chemical characterization of FRB Experimental Lakes, NW Ont.)
(2): 189 (primary production & phytoplankton of FRB Experimental Lakes, NW Ont.)
(2): 245 (zooplankton distribution & abundance in 2 FRB Experimental Lakes, NW Ont.)
(2): 295 (differences & similarities in FRB Experimental Lakes, NW Ont.)
(4): 559 (freshwater zooplankton calorific values)
(11): 1763 (eutrophication of 1 of FRB Experimental Lakes, NW Ont.)
- Schooling
J 28(7): 999 (spacing & density as criteria for distinguishing from aggregation of fish)
(7): 1019 (effects on dispersal of introduced rainbow trout)
(11): 1805 (estimating photographically distances between fish in an aquarium)
- Schreck, Carl Bernhard
J 28(7): 987 (Kern R. trouts)
- Schroederella (Polychaeta Sedentaria)
J 28(10): 1483 (new species *S. berkeleyi*, re *S. pauliani*)
- Scomber colias* (see Mackerel, chub)
japonicus (see Mackerel, chub)
scombrus (see Mackerel, Atlantic)
- Scomberesox saurus* (see Saury, Atlantic)
- Scophthalmus aquosus* (see Windowpane)
- Scorpaenichthys marmoratus* (see Cabezon)
- Scorpaenidae (see also Rockfishes; also individual species)
T 246 (bibliography of N America Pac. coast)
- Scotian Shelf, off Nova Scotia
T 252 (herring larvae ecology & macrozooplankton biomass)
260 (groundfish abundance & other data, 1958-68 surveys)
- Scott, David Paul
J 28(11): 1807 (mobilization of mercury into fish)
- Scott, James Stuart
T 260 (abundance of Scotian Shelf groundfishes)
S 1483 (*Lecithophyllum botryophorum* in *Argentina silus*)
A 182 (reports on researches in ICNAF area, 1969)
- Scott, Kenneth Randall
J 28(8): 1196 (monitoring fish tank oxygen)
S 1461 (thermistor readout monitors cold storage)
1473 (portable refrigerated fish holding unit)
- Screens
T 264 (fluid mechanics of netting & low-solidity screens)
- Scrivener, James Charles Edward
J 28(7): 1062 (detecting burrowed lobster)
T 235 (agonistic behaviour of the American lobster)
241 (bibliography of economically important shrimps)
- Sculpin, arctic (*Myoxocephalus scorpioides*)
T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, arctic hookear (*Artediellus uncinatus*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, arctic staghorn (*Gymnocanthus tricuspidis*)
T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, fluffy (*Oligocottus snyderi*)
J 28(6): 928 (feed in tidepools, cohabiting with tidepool sculpins)
- Sculpin, great (*Myoxocephalus polyacanthocephalus*)
T 257 (taken in 1970 B.C. trawl fishery)
- Sculpin, longhorn (*Myoxocephalus octodecemspinosus*)
J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)

Abbreviations: J — Journal, B — Bulletin, AR — Annual Report, R — Review, Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's, T — Technical Reports, MSP — Miscellaneous Special Publications, S — Studies, A — Interpretive Articles.

- (9): 1285 (methylmercury in Bay of Fundy & N.S. banks)
 T 260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, mailed (*see* Sculpin, moustache)
- Sculpin, mottled (*Cottus bairdi*)
 J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Sculpin, moustache (*Triglops murrayi*) (mailed sculpin)
 J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, Pacific staghorn (*Leptocottus armatus*)
 J 28(10): 1563 (new host of *Holobomolochus spinulus* copepod)
 T 257 (taken in 1970 B.C. trawl fishery)
- Sculpin, polar (*Cottunculus microps*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, ribbed (*Triglops pingeli*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, shorthorn (*Myoxocephalus scorpius*)
 J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, spatulate (*Icelus spatula*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpin, tidepool (*Oligocottus maculosus*)
 J 28(3): 383 (high-tide movements & homing behaviour)
 (6): 928 (feed in tidepools, cohabiting with fluffy sculpins)
 (10): 1563 (new host of *Holobomolochus spinulus* copepod)
- Sculpin, torrent (*Cottus rhotheus*)
 J 28(9): 1352 (increased predation on coho salmon fry on moonlight nights)
- Sculpin, twohorn (*Icelus bicornis*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sculpins (Cottidae) (*see also* Cabezon)
 J 28(12): 1922 (first B.C. record of *Icelus spiniger*)
 T 246 (bibliography of Pac. N America coast)
 261 (bibliography for Gulf of St. Lawrence)
- Sea anemones (Anthozoa)
 J 28(10): 1677 (*Pachyceriantus fimbriatus* from B.C. & Washington; synonymy with *P. torreyi* & *P. plicatus*)
 S 1564 (*trans*-6-hexadecenoic acid & corresponding alcohol in lipid constituents of *Metridium dianthus*; also fatty-acids composition of lipids)
- Sea level (*see also* Tides; Oceanography)
 T 219 (analysis of variations, St. Margaret's Bay & Halifax Harbour, N.S.)
- Sea otter (*Enhydra lutris*)
 A 209 (transplantation from Alaska to B.C.)
- Sea poachers (*see* Poacher)
- Sea raven (*see* Raven, sea)
- Sea urchins (*Strongylocentrotus*)
 T 217 (pollution by Atl. coast petroleum oil spills)
 225 (associated with Bay of Fundy scallop beds)
 S 1569 (determination of residual fuel oil contamination in)
- Sea water (*see also* Nutrients, aquatic; Oceanography; Salinity; Sea water, refrigerated; Waters, natural)
 T 218 (effects on bacteria survival)
 S 1467 (automated measurement of dissolved nutrients)
 1472 (improved indicator for colorimetric chlorinity titrations)
 1512, 1517 (isopiestic measurements of H₂O-NaCl-MgCl₂ (& -Na₂SO₄) ternary systems at 25 C)
- Sea water, artificial
 J 28(5): 788 (analysis method for ammonium-nitrogen in aquaria)
- Sea water, refrigerated (for holding fishery catches) (*see also* Chilling; Freezing)
 T 220, 242 (effects on sockeye salmon in normal & salt-fortified, re quality of canned product)
 A 203 (resume of T 220 & 242 above)
- Seal, Atlantic harbour (*Phoca vitulina concolor*)
 J 28(5): 755 (observations on whelping colony, Sable Is., N.S.)
 S 1573 (occurrence in lakes of Thlewiaza R., N.W.T., & improbability of being *P. v. mellonae*)
- Seal, bearded (*Erignathus barbatus*)
 MSP 13(F) (actual & potential Canadian Arctic fishery)
 A 231 (actual & potential Canadian Arctic fishery)
- Seal, harp (*Phoca (Pagophilus) groenlandicus*)
 MSP 13(F) (actual & potential Canadian Arctic fishery)
 S 1581 (migration surveys in Gulf of St. Lawrence & Strait of Belle Isle, using various marking & tracking devices)
 A 181, 182 (Canadian fisheries & research summaries, ICNAF 1969)
 184 (population dynamics & exploitation of Canadian Arctic)
 194 (Nfld. fishery)
 231 (actual & potential Canadian Arctic fishery)
- Seal, hooded (*Cystophora cristata*)
 A 182 (Canadian fisheries & research summary, ICNAF 1969)
 194 (Nfld. fishery)

- Seal, northern fur (*Callorhinus ursinus*)
 J 28(10): 1663 (distribution off B.C. & stomach contents as clue to Pac. herring offshore distribution)
- Seal, ringed (*Phoca (Pusa) hispida*)
 T 224 (computer programs for population data analysis; some age group data)
 MSP 13(F) (actual & potential Canadian Arctic fishery)
 A 184 (population dynamics & exploitation of Canadian Arctic)
 200 (mercury contamination, Hudson Bay)
 231 (actual & potential Canadian Arctic fishery)
- Seaperch, pile (see Perch, pile)
- Seaperch, pink (*Zalembeus rosaceus*)
 J 28(5): 767 (host of new trematode species)
- Seaperch, shiner (see Perch, shiner)
- Seaperch, white (*Phanerodon furcatus*)
 J 28(7): 1051 (maturity & fecundity, Tomales Bay, Calif.)
- Seasnail (Atlantic) (*Liparis atlanticus*)
 T 225 (associated with Bay of Fundy scallop beds)
 261 (bibliography for Gulf of St. Lawrence)
- Seasnail, blacksnout (*Paraliparis copei*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Seasnail, gelatinous (*Liparis koefoedi*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Seasnail, Greenland (*Liparis tunicatus*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Seasnail, longfin (see Snailfish, longfin)
- Seasnail, polka-dot (*Liparis cyclostigma*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Seasnail, striped (*Liparis liparis*)
 T 261 (bibliography for Gulf of St. Lawrence)
- Season (see also Behaviour; also biological and physical phenomena affected by seasons)
 J 28(4): 587 (effects on wild vs. hatchery rainbow trout metabolism)
 (7): 935 (effects on fish communities components, in Passamaquoddy Bay, N.B., & in warmer waters)
 (7): 1009 (discreteness of Gulf of St. Lawrence herring populations in spring & autumn fisheries)
 (10): 1549 (re polychaetes settlement on test panels, California)
- T 177 (re degree of paralytic shellfish toxicity in E Canada)
- Seawater (see Sea water; Sea water, artificial; Sea water, refrigerated)
- Seaweeds (see also Algae; Dulse; Eelgrass)
 J 28(5): 778 (stipe length & environment re taxonomy of *Laminaria agardhii* & *L. longicruris*)
 (5): 793 (yellow phosphorus accumulation in *Fucus vesiculosus* & *F. distichus*)
 (11): 1733 (productivity re use by lobsters, etc., St. Margaret's Bay, N.S.)
 S 1457 (seasonal sterols content of dulse & 3 other red seaweeds)
 1530, 1548 (cell-wall glucan chemical structure in *Rhodymenia pertusa*)
 1580 (classification & ordination of many shallow benthic species, P.E.I.)
- Sebago (see Salmon, Atlantic landlocked)
- Sebastes *aleutianus* (see Rockfish, rougheye)
alutus (see Perch, Pacific ocean)
aurora (see Rockfish, aurora)
brevispinis (see Rockfish, silvergray)
caenaemeticus (see Rockfish, shorttraker)
caurinus (see Rockfish, copper)
crameri (see Rockfish, darkblotched)
diploproa (see Rockfish, splitnose)
elongatus (see Rockfish, greenstriped)
entomelas (see Rockfish, widow)
flavidus (see Rockfish, yellowtail)
goodei (see Chilipepper)
helvomaculatus (see Rockfish, rosethorn)
maliger (see Rockfish, quillback)
marinus marinus (see Redfish)
marinus mentella (see Redfish)
melanops (see Rockfish, black)
miniatus (see Rockfish, vermilion)
mystinus (see Rockfish, blue)
nigrocinctus (see Rockfish, tiger)
paucispinis (see Bocaccio)
pinniger (see Rockfish, canary)
polyspinis (see Rockfish, northern)
proriger (see Rockfish, redstripe)
reedi (see Rockfish, yellowmouth)
ruberrimus (see Rockfish, yelloweye)
rubrivinctus (see Rockfish, flag)
saxicola (see Rockfish, stripetail)
zacentrus (see Rockfish, sharpchin)
- Sebastodes (see Sebastes)
- Sebastolobus *alascanus* (see Thornyhead, shortspine)
altivelis (see Thornyhead, longspine)
- Secchi disk (see Transparency of natural waters)

- Sediments; Sedimentation (*see also* Corer; Grab)
 J 28(2): 139, 265, 277 (of many small NW Ont. lakes)
 (3): 335 (bacterial survival during ingestion of, by tubificid oligochaetes in Toronto Harbour, Ont.)
 (6): 849 (assessing character by sampler)
 (6): 911 (re primary productivity, Chesapeake Bay, Md.)
 (7): 1049 (sampling receptacle for interstitial water in intertidal mud flats)
 (7): 1055 (mud fluoride non-fusion distillation assay method)
 (9): 1327 (of fuel oil from marine spills, through ingestion & defecation by zooplankton)
 (11): 1715 (re benthic macroinvertebrates community metabolism, L. Ontario bays)
 (12): 1877 (DDT accumulation & persistence in)
 T 233 (elemental phosphorus & fluoride content, re pollution of Long Bay, Nfld.)
 S 1500 (nature & amounts of gases from B.C. coastal water sediments close to pulp mills; also mathematics of bubble formation)
 1519 (protein, amino acids, & ammonia determination in marine)
 1528 (fatty acids indicative of geological fate of chlorophyll in 50,000,000-year-old lake shale)
 1531 (flocculating reaction, re pollutants removal)
 A 199 (marine geological investigations of Gulf of St. Lawrence)
 232 (pollution from removal of radionuclides from sea water)
- Seeds, plant
 S 1475 (confusion between C_{18} & C_{20} in fatty acids analyses)
 1481 (hydrogenolysis products of fatty acids from *Euphoria longana* seed oil)
- Segerstråle, Sven Gustaf
 J 28(9): 1331 (population problems of glacial relict amphipod)
- Seining; Seines
 CJC 18: 1 (recent developments in Nfld. herring fishery)
- Seki, Humitake
 S 1485 (organic matter in aquatic environments)
- Selar crumenophthalmus* (*see* Scad, bigeye)
- Selectivity of nets (*see* Nets)
- Selenium derivatives
 J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
- Semotilus atromaculatus* (*see* Chub, creek)
corporealis (*see* Fallfish)
- Senecella* (*see* Calanoida; Copepoda)
- Sergeant, David Ernest
 S 1575 (feeding rates of Cetacea)
 1581 (migration and orientation in harp seals)
 A 229 (review of Russian book on age determination of mammals)
- Seriola zonata* (*see* Rudderfish, banded)
- Seromucoid
 J 28(8): 1173 (levels in Pac. salmon, trouts, & bovine blood sera)
- Serpulidae (*see* Polychaeta)
- Serum (*see also* Blood)
 J 28(8): 1173 (glycoprotein constituents levels in Pac. salmon & trouts)
 (11): 1745 (esterases, lactate dehydrogenases & transferrins, of large & dwarf white suckers & longnose sucker)
 B 177 (serology re paralytic shellfish poisoning)
- Sewage (*see* Pollution)
- Sex effects (*see also* Hermaphroditism; Hormones; Ovary; Testes)
 J 28(4): 587 (on rainbow trout metabolism)
- Sex ratio
 J 28(3): 417 (Pac. ocean perch, Washington & B.C. coast)
 (5): 771 (rainbow trout, Batchawana Bay, L. Superior)
 (6): 821 (Skeena R. pink & sockeye salmon re gillnet selectivity)
 A 193 (capelin)
- Sexual maturity (*see* Hormones; Maturity; Ovary; Reproduction; Testes)
- Shad, American (*Alosa sapidissima*)
 J 28(7): 1507 (effect of warm water of nuclear power plant discharge canal)
 (8): 1167 (net-avoidance behaviour tracked ultrasonically)
 T 256 (taken during 1970 B.C. trawl fishery)
 261 (bibliography for Gulf of St. Lawrence)
- Shad, gizzard (*Dorosoma cepedianum*)
 J 28(7): 957 (vulnerability to northern pike predation)
 T 261 (bibliography for Gulf of St. Lawrence)
- Shah, Bhagwan G.
 J 28(6): 843 (zinc retention in young rats fed increasing levels of high-zinc oysters)
- Shale
 S 1528 (isoprenoid fatty acids indicative of geological fate of chlorophyll in ancient lake sediments)
- Shand Dam (*see* Grand River, Ont.)

- Shanny, arctic (*Stichaeus punctatus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shanny, daubed (*Lumpenus maculatus*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Shanny, radiated (*Ulvaria subbifurcata*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Sharaf El Din, Sayed Hassan
T 219 (physical oceanography of St. Margaret's Bay)
- Shark, basking (*Cetorhinus maximus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shark, blue (*Prionace glauca*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shark, brown cat (*Apristurus brunneus*)
T 221 (taken during B.C. groundfish surveys)
257 (taken in B.C. trawl fishery, 1970)
- Shark, dogfish (see Dogfish, spiny (Pacific))
- Shark, Greenland (*Somniosus microcephalus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shark, hammerhead (see Hammerhead, scalloped)
- Shark, mako (see Mako, shortfin)
- Shark, thresher (*Alopias vulpinus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shark, white (*Carcharodon carcharias*)
T 261 (bibliography for Gulf of St. Lawrence)
- Shearwater, sooty (*Puffinus griseus*)
T 210 (commonest bird observed during B.C. trawl survey off SW Vancouver Is.)
- Sheepshead (see Drum, freshwater)
- Sheldon, Raymond Wilfred
S 1503 (small particles in sea water)
1537 (universal grade scale for particulate materials)
- Shell (see also Carapace)
J 28(9): 1335 (weathervane scallop, re growth & age, Washington coast)
- Shellfish (see also Bivalves; Lamellibranchs; Mollusca; Shell; also names of species)
- B 177 (cause & incidence of paralytic toxicity in E Canadian)
- Shih, Chang-tai
B 176 (Canadian marine zooplankton)
- Shiner, common (*Notropis cornutus*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
(9): 1285 (methylmercury in N.B.)
T 226 (mortalities from pollution, & as possible immune carriers of *Aeromonas liquefaciens* bacteria disease to salmon & suckers, NW Miramichi R., N.B.)
- Shiner, golden (*Notemigonus crysoleucas*)
J 28(7): 957 (vulnerability to northern pike predation)
(9): 1285 (methylmercury in N.B.)
- Shiner, spotfin (*Notropis spilopterus*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
- Shiner, spottail (*Notropis hudsonius*)
J 28(7): 1507 (effect of warm water of nuclear power plant discharge canal)
- Shrimp, coonstripe (*Pandalus danae*) (see also Shrimp, humpback)
T 241 (bibliography)
- Shrimp, glass (*Palaemonetes kadiakensis*)
J 28(5): 705 (biological magnification & degradation of insecticides by)
- Shrimp, grass (*Palaemonetes vulgaris*)
J 28(9): 1225 (cadmium toxicity tests)
- Shrimp, humpback (*Pandalus hypsinotus*) (coonstripe shrimp; humpy shrimp)
J 28(1): 98 (spines characterizing females re spawning history)
- Shrimp, humpy (*Pandalus goniurus*) (see also Pandalid, benttail; Shrimp, humpback)
J 28(1): 98 (spines characterizing female re spawning history)
- Shrimp, pink (*Pandalus borealis*)
J 28(1): 98 (spines characterizing females re spawning history)
(4): 509 (carotenoids, re use of processing wastes for improving brook trout pigmentation)
T 241 (bibliography)
269 (catches during B.C. groundfish survey, 1971)
S 1527 (muscle & egg sterols)

- Shrimp, sand (*Crangon septemspinosa*)
J 28(9): 1225 (cadmium toxicity tests)
- Shrimp, sidestripe (*Pandalopsis dispar*)
J 28(1): 98 (spines characterizing females re spawning history)
T 221 (taken in B.C. groundfish surveys)
- Shrimp, smooth pink (*Pandalus jordani*)
T 241 (bibliography)
- Shrimp, spot (see Prawn (*Pandalus platyceros*))
- Shrimp, striped pink (*Pandalus montagui*)
T 241 (bibliography)
- Shrimmeal
J 28(4): 509 (for feeding brook trout to improve pigmentation)
- Shrimps (see also Prawns)
J 28(10): 1615 (new species *Eualus berkeleyorum*, also first records of *Parapasiphae sulcatifrons*, *Acanthephyra curtirostris*, *A. quadrispinosa* & *Systellaspis braueri* caridean species, off B.C. coast)
T 241 (bibliography)
- Sialic acid
J 28(8): 1173 (levels in salmon, trout, & bovine blood sera)
- Sigalionidae (see Polychaeta)
- Sight (see Vision)
- Silicate (for general data re content in natural waters see Nutrients, aquatic; see also Limnology; Oceanography)
J 28(2): 203 (in waters of many small NW Ont. lakes)
(2): 277 (in sediments of 16 small NW Ont. lakes)
S 1467 (automated measurement of, in sea water)
- Siliqua patula* (see Clam, razor)
- Silliman, Ralph Parks
J 28(8): 1211 (experiments re fishery models)
- Silverside, Atlantic (*Menidia menidia*)
T 261 (bibliography for Gulf of St. Lawrence)
- Simulium arcticum* (see Blackfly)
- Siphon ("neck")
B 177 (paralytic shellfish toxin in E Canada clams, mussels, & whelk)
- Sipos, John Charles
T 233 (possible toxic materials in Nfld. bottom deposits)
- Size; Size distribution (see also Growth; Length; Weight)
J 28(1): 49 (in populations of 2 salamander species, Marion L., B.C.)
(4): 616 (giant female brook lampreys in upper Great Lakes, re average adult size)
(6): 821 (Skeena R. sockeye & pink salmon, re gillnet selectivity)
(7): 947 (teleosts, re gill blood circulation & respiration)
(7): 957 (re vulnerability of fishes to predation by northern pike)
(10): 1545 (Pac. herring early larvae raised under various temperature-salinity combinations)
(10): 1503 (pink & chum salmon fry, re predation by coho salmon)
(10): 1621 (northern rockfish, re age & sex)
CNG 91 (steelhead trout, in Vancouver Is. stream-anglers' catches)
T 251 (girth re length of Pac. ocean perch off B.C. in 1969)
S 1503 (re occurrence & formation of small particles in sea water)
1537 (comparison of several grade scales, & proposed universal grade scale for particulate materials)
A 197 (& weight of fish re metabolic energy requirements: reviews)
207 (composition, N.B. & N.S. herring)
211 (particulate matter, re feed availability to different trophic levels in marine feed chain)
- Skaha Lake, B.C.
S 1536 (deformed chironomids larvae possibly caused by synthetic chemical pollutants)
- Skate, barndoor (*Raja laevis*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities)
T 261 (bibliography for Gulf of St. Lawrence)
- Skate, big (Pacific) (*Raja binoculata*)
J 28(1): 95 (differential tail growth in embryo, re respiration mode)
T 246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)
- Skate, black (*Raja kincaidii*)
T 246 (bibliography)
- Skate, California (*Raja inornata*)
T 246 (bibliography)
- Skate, little (*Raja erinacea*)
J 28(7): 935 (winter periodic component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
T 261 (bibliography for Gulf of St. Lawrence)
- Skate, longnose (*Raja rhina*)
T 246 (bibliography)
257 (taken in B.C. trawl fishery, 1970)

- Skate, smooth (*Raja senta*)
 J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 T 261 (bibliography for Gulf of St. Lawrence)
- Skate, starry (*Raja stellulata*)
 T 257 (taken in 1969 & 1970 B.C. trawl fishery)
- Skate, thorny (*Raja radiata*)
 J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length range)
 (9): 1285 (methylmercury in Bay of Fundy & N.S. banks)
 T 261 (bibliography for Gulf of St. Lawrence)
 S 1489 (binding affinities of blood proteins for sex hormones & corticosteroids in)
- Skate, winter (*Raja ocellata*)
 J 28(7): 935 (winter periodic component of Passamaquoddy Bay fish communities, N.B., & length range)
 T 261 (bibliography for Gulf of St. Lawrence)
- Skates (Atlantic)
 T 260 (standing crop, availability, sizes, lengths, etc. from Scotian Shelf surveys, 1958-68)
- Skates, (Pacific)
 T 221, 269 (taken in B.C. groundfish surveys, 1970-71)
 246 (bibliography)
- Skauen, Donald Matthew
 J 28(5): 769 (simple, reliable method for assaying ¹⁴C-labelled benthic microflora)
- Skeena River, B.C.
 J 28(4): 513 (hypothesis for age of return alternation in successive sockeye salmon generations)
 (6): 821 (gillnet selectivity re sockeye & pink salmon fisheries)
- Skeleton (see Osteology)
- Skin
 J 28(1): 104 (morphology of bacterium causing lesions on rainbow trout)
 (4): 485 (histological effects of hormones & cortisol on gonadectomized adult sockeye salmon)
 (4): 509 (attractiveness of brook trout enhanced by feeding crab & shrimp wastes)
 (9): 1241 (incidence & comparison of tumours on Pleuronectidae of Bellingham Bay, Wash.)
 (10): 1672 (ambicoloration of a petrale sole)
- Skipjack (see Tuna, skipjack)
- Slime, fish
 J 28(5): 783 (beneficial effect of removal by washing, on keeping quality of freshwater fish)
- Smelt, American (see Smelt, rainbow)
- Smelt, rainbow (*Osmerus mordax*) (American smelt)
 J 28(1): 95 (DDT residues in N.B. & P.E.I.)
 (5): 786 (heavy-metal concentrations in dressed, from L. Erie)
 (7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
 T 255 (toxicity tests with yellow phosphorus)
 261 (bibliography for Gulf of St. Lawrence)
 S 1474 (exceptional occurrence of odd-chain fatty acids, also fatty acid composition of triglycerides, cephalins, & lecithins in)
- Smelt, whitebait (*Allosmerus elongatus*)
 J 28(10): 1681 (first record from Juan de Fuca Strait, B.C.)
- Smith, Barbara
 J 28(1): 1 (DMA in muscle of gadoid fish)
- Smith, Charlie Edward
 J 28(1): 112 (leukemia in *Salmo clarki*)
- Smith, Howard Donald
 J 28(4): 573 (enumerating kokanee fry)
- Smith, Janice Elaine
 T 216 (summary report B.C. trawl fishery 1969)
 257 (statistics on B.C. trawl fishery)
 259 (commercial landings of western Canadian rock sole)
- Smith, Manning Amison
 S 1484 (molecular structure & biological activity among mononitrophenols containing halogens)
- Smith, Michael Stuart
 J 28(10): 1672 (ambicoloration in petrale sole)
 T 221 (*G. B. Reed* groundfish cruise 70-3)
 243 (1970 sablefish culture progress)
 269 (*G. B. Reed* groundfish cruise 71-1)
- Smith, Thomas Georges
 T 224 (computer programs for ringed seal population data)
 S 1573 (harbour seal in Thlewiaza R., N.W.T.)
- Smoking; Smoked products
 J 28(5): 643 (killing *Salmonella* bacteria by ⁶⁰Co irradiation during lake whitefish processing)

- Smolts (*see* names of adult fish, e.g., Salmon, Trout) 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- Snail, eastern mud (*Nassarius obsoletus*) (*see also* Snails (freshwater)) 246 (bibliography)
- J 28(9): 1225 (cadmium toxicity tests)
- A 58(F) (carrier of fluke larvae causing "clam-diggers' itch" dermatitis on humans)
- Snail, moon (*see* Clam drill, greater) (*see also* Snails (freshwater))
- Snails (freshwater)
- A 58(F) (*Lymnea emarginata*, *L. stagnalis* & *Physa* as carriers of fluke larvae causing "swimmers' itch" dermatitis on humans)
- Snailfish, longfin (*Careproctus longipinnis*) (longfin seasnail)
- T 261 (bibliography for Gulf of St. Lawrence)
- Snakeblenny (*Lumpenus lumpretaeformis*)
- J 28(7): 935 (regular component of Passamaquoddy Bay fish communities, N.B., & length frequencies)
- T 261 (bibliography for Gulf of St. Lawrence)
- Snakeblenny, fourline (*Eumesogrammus praecisus*)
- T 261 (bibliography for Gulf of St. Lawrence)
- Snapper, red (*Sebastes*) (*see* Rockfish, yelloweye)
- Snow (*see* Precipitation)
- Sodium derivatives (*see also* Composition, chemical; Salinity)
- J 28(2): 171, 203 (in waters of many small NW Ont. lakes)
- (2): 277 (in sediments of 14 small NW Ont. lakes)
- (5): 625, 635 (level changes in brook trout from handling, anesthetization, & surgery)
- S 1512, 1515 (isopiestic measurements on ternary system solutions, re NaCl & Na₂SO₄ activity coefficients)
- Sole, butter (*Isopsetta isolepis*)
- T 246 (bibliography)
- 257 (taken in B.C. 1970 trawl fishery)
- Sole, C-O (*Pleuronichthys coenosus*)
- T 246 (bibliography)
- 257 (taken in B.C. 1970 trawl fishery)
- Sole, curlfin (*Pleuronichthys decurrens*)
- T 246 (bibliography)
- 257 (taken in B.C. 1970 trawl fishery)
- Sole, deepsea (*Embassichthys bathybius*)
- T 246 (bibliography)
- Sole, Dover (*Microstomus pacificus*)
- T 210, 221, 269 (catches during B.C. groundfish surveys)
- 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 246 (bibliography)
- Sole, English (*Parophrys vetulus*) (lemon sole)
- J 28(9): 1241 (comparison of skin tumors in other flounder species)
- T 216, 257 (taken in 1969 & 1970 B.C. & U.S. Pac. coast commercial trawling)
- 221 (catches during B.C. groundfish surveys)
- 246 (bibliography)
- S 1487 (infection with *Philometra americana* nematode)
- Sole, fantail (*Xystreus lyolepis*)
- T 246 (bibliography)
- Sole, flathead (*Hippoglossoides elassodon*)
- J 28(9): 1241 (comparison of skin tumors in other flounder species)
- T 210 (catches during B.C. groundfish surveys)
- 246 (bibliography)
- 257 (taken in 1970 B.C. trawl fishery)
- Sole, gray (*see* Flounder, witch)
- Sole, lemon (Pacific) (*see* Sole, English)
- Sole, petrale (*Eopsetta jordani*) (Pacific brill)
- J 28(5): 727 (salinity & temperature effects on embryonic development)
- (10): 1672 (ambicoloration & anatomy of a)
- T 210, 221, 269 (catches during B.C. groundfish surveys)
- 216, 257 (catches during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 246 (bibliography)
- Sole, rex (*Glyptocephalus zachirus*)
- T 210, 221 (catches during B.C. groundfish surveys)
- 216, 257 (taken during B.C. & U.S. Pac. coast commercial trawling, 1969, 1970)
- 246 (bibliography)
- Sole, rock (*Lepidopsetta bilineata*)
- T 216, 257 (taken in 1969 & 1970 B.C. & U.S. Pac. coast commercial trawling)
- 220 (catches during B.C. groundfish surveys)
- 246 (bibliography)
- 259 (length & age composition of B.C., also commercial landings from Cape Scott Bank, 1959-1969)
- Sole, sand (*Psettichthys melanostictus*)
- J 28(9): 1241 (incidence of skin tumors, Bellingham Bay, Wash.)
- T 246 (bibliography)
- 257 (taken in 1970 B.C. trawl fishery)
- Sole, slender (*Lyopsetta exilis*)
- J 28(10): 1563 (host of a new copepod species)
- T 210, 221, 269 (catches during B.C. groundfish surveys)
- 246 (bibliography)
- 257 (taken in 1970 B.C. trawl fishery)

- Sole, yellowfin (*Limanda aspera*)
 T 246 (bibliography)
 257 (taken in 1970 B.C. trawl fishery)
- Somniosus microcephalus* (see Shark, Greenland)
- Sonstegard, R. A.
 J 28(9): 1350 (infectious pancreatic necrosis of salmonids)
- Sound, speed of (for general data re natural waters see Limnology; Oceanography. See also Echolocation; Sounding, echo; Ultrasonics)
- Sound, ultrasonic (see Echolocation; Sounding, echo; Ultrasonics)
- Sounding, echo (see also Echolocation)
 J 28(3): 446 (electronic processing of acoustical data from fishery research)
 (7): 1035 (quick statistical methods for analyzing digital echo fish counter sequences) (bio-acoustical program during C.S.S. Hudson oceanographic survey circumnavigating N & S America)
- A 220
- Southcott, Burnett Anne
 J 28(8): 1071 (salt tolerance of type E *Clostridium botulinum*)
- Soviet Union (see Union of Soviet Socialist Republics (USSR))
- Sparks, Richard Edward
 J 28(8): 1107 (computer simulation of pollution minnow deaths)
- Spat (see Oyster, Atlantic; Oyster, Pacific)
- Spawning
 J 28(1): 98 (*Pandalus goniurus* shrimp)
 (4): 513 (egg size re age of successive generations of Skeena R. sockeye salmon)
 (4): 553 (meristic differences between spring- & autumn-spawning SW Nfld. herring)
 (5): 727 (salinity & temperature effects re petrale sole embryonic development in B.C. coastal waters)
 (6): 821 (escapement, re gillnet efficiency of Skeena R. sockeye & pink salmon fishery)
 (6): 849 (beds: assessing silt characteristics by sampler)
 (7): 935 (period re seasonal abundance of different fishes in communities, Passamaquoddy Bay, N.B.)
 (7): 1009 (period, re S Gulf of St. Lawrence seasonal herring stocks discreteness)
 (7): 1051 (season of white perch, Tomales Bay, Calif.)
- (12): 1857 (kokanee transplanted into L. Huron)
 B 178 (re raft-culturing of Pac. oyster in B.C.)
 CJG 18: 25 (seasonal, of NE Nfld. & Labrador herring)
 T 232 (razor clam, Queen Charlotte Is. & W coast Vancouver Is., B.C.)
 252 (herring off southern N.S. coast)
 S 1468 (behaviour of *Pacifastacus trowbridgii* crayfish)
 1557 (temperature & photoperiod effects on crayfish subsequent)
 1590 : 555 (of various fishes re temperature: review)
 A 193 (Atl. & Pac. capelin)
- Speciation; Subspeciation (see also Taxonomy)
 J 28(1): 23 (*Calanus finmarchicus* vs. *C. glacialis*)
 (3): 391 (*Mesodinium* ciliate species)
 (4): 465 (lake char intraspecific variations & postglacial distribution)
 (7): 987 (& subspeciation of *Salmo* in Upper Kern R. basin, Calif.)
 (10): 1583 (possibilities of radioisotope X-ray fluorescence spectroscopy: review)
 (10): 1403 (re amphipacific distribution of polychaetes)
 (10): 1469 (re *Syllides* polychaetes)
- Species, indicator (see Indicator species)
- Species, introduced (see also Transplantation)
 J 28(5): 663 (re rainbow trout worldwide distribution)
 (12): 1857 (kokanee into L. Huron)
 A 181 (summary of 1969 results of pink salmon transplants from B.C. to Nfld.)
- Species, new (see also Genera)
 J 28(5): 767 (*Labrifer balli*, trematode parasite of pink seaperch)
 (10): 1373 (*Metavermilia annobonensis*, *M. taena*, & *M. nates* serpulid polychaetes)
 (10): 1437 (*Dodecaceria berkeleyi*, cirratulid polychaete from New Zealand)
 (10): 1527 (*Pagurus cawrinus*, *P. quaylei* & *P. stevensae* hermit crabs, from B.C.)
 (10): 1393 (*Stehnelais berkeleyi* sigalionid polychaete from E Pac.)
 (10): 1483 (*Schroederella berkeleyi* polychaete from off Massachusetts)
 (10): 1563 (*Holobomolochus venustus* & *H. oculatus* parasitic copepods)
 (10): 1429 (*Macellicephaloides berkeleyi* aphroditid polychaete, from Aleutian trench)
 (10): 1615 (*Eualis berkeleyorum* caridean shrimp, off B.C. coast)
 (10): 1469 (*Syllides benedicti* syllid polychaete)
 (10): 1645 (*Rhabdochona canadensis* nematode parasitic in Albertan flathead chub, lake chub, & longnose dace)

Abbreviations: J — Journal, B — Bulletin, AR — Annual Report, R — Review, Circular Series: CHN — Halifax; CNG — Nanaimo; CJG — St. John's. T — Technical Reports. MSP — Miscellaneous Special Publications. S — Studies. A — Interpretive Articles.

- (10): 1445 (*Magelona berkeleyi* polychaete, Puget Sound)
- S 1488 (*Actiniscus canadensis*, new species; *A. pentasterias*, new variety *arcticus*; *Pseudoactiniscus apentastericus* new genus & species (dinoflagellates))
- 1496 (*Proclavellodes pillaii*, new genus & species of parasitic copepod, from S India)
- 1501 (*Hemibaphes intermedius* copepod parasitic on Strait of Georgia sculpins)
- 1533 (*Hesperophylax oreades* trichopteran, & *Cressoniella montana* (new genus) of Ephyridae in a high Colorado mountain creek)
- 1566 (parasitic copepod *Lernanthropus togatus* on gills of Kenyan marine fish *Gaterin*)
- 1577 (*Dinamoebidium coloradense* & *Katodinium auratum* dinoflagellates from Como Creek, Colorado)
- 1578 (*Dinamoebidium hyperboreum* from Ellesmere Is. coastal waters, N.W.T.)
- 1589 (*Dinoasteromonas tribrachiatus*, *D. pentaradiatus*, *D. deflanderi*, *D. brouweri* (flagellates))
- Species, new records or range extensions of
- J 28(3): 461 (Atlantic menhaden about 100 miles NE to Northumberland Strait)
- (4): 616 (*Abraliopsis felix* squid 300 miles N on Pac. coast)
- (6): 927 (masked greenling, from Alaskan SE to B.C. coast)
- (9): 1347 (bluespotted poacher 250 miles N into B.C.)
- (9): 1349 (fifth known specimen of *Macdonaldia challengerii* spiny eel extends range to Oregon coast)
- (10): 1527 (20 hermit crab species in or to B.C.)
- (10): 1491 (*Chloelia entypa* & *Drilonereis falcata minor* polychaetes off Washington coast)
- (10): 1563 (*Holobomolochus spinulus* parasitic copepod in Canadian waters)
- (10): 1615 (*Parapasiphae sulcatifrons*, *Acanthephyra curtirostris*, *A. quadrispinosa*, & *Systelaspis braueri* caridean shrimps off B.C. coast)
- (10): 1469 (several Syllidae polychaete species)
- (12): 1922 (first S extension of *Icelus spiniger* sculpin to B.C. coast)
- T 202 (diatoms new to Canadian Atl. provinces, from NW Miramichi R.)
- 225 (first NW Atl. record of *Yvesia* sp., *Plocamionida ambigua* & *Sphaerotylus borealis* (sponges))
- S 1533 (1 genus, 3 species, & several forms, of chironomids new to N America, from a high Colorado mountain creek)
- Speed of swimming (see Swimming)
- Spence, John Andrew
- J 28(1): 35 (differences in benthos caused by an impoundment)
- (1): 45 (differences in fish populations caused by mainstream impoundment)
- Sperm (see also Testes)
- J 28(5): 745 (cryogenic preserved, for fertilizing coho & chinook salmon eggs)
- (12): 1915 (cryogenic preserved, for fertilizing steelhead trout eggs)
- Sphaeriidae
- J 28(11): 1683 (associations & species diversification in L. Ontario bays)
- S 1543 (of Georgian Bay, L. Ontario, & L. Erie)
- Sphaerotylus* (see Sponges)
- Sphyrna lewini* (see Hammerhead, scalloped)
- Spinachia spinachia* (see Sticklebacks)
- Spindle shell (*Colus stimpsoni*) (Stimpson's whelk)
- B 177 (re paralytic shellfish poisoning, E Canada)
- Spine (see Fins; Vertebrae)
- Spirochaete
- S 1469 (*Cristispira* occurrence in 12 of 62 W Canada marine bivalve species)
- Spisula solidissima* (see Clam, bar)
- Spleen
- J 28(1): 47 (hemosiderin bodies re erythropoiesis in blue gourami)
- (1): 112 (histology of cutthroat trout with leukemia condition)
- (7): 1064 (vs. feces re presence of pancreatic necrosis virus in brook trout)
- Spoilage (see Bacteria; Quality of fishery products; Trimethylamine)
- Sponges
- T 225 (associated with Bay of Fundy scallop beds, including first NW Atl. record for *Yvesia* sp., *Plocamionida ambigua*, & *Sphaerotylus borealis*)
- Sport fishery (see Angling; Salmon; Trout)
- Sprague, John Booty
- J 28(1): 59 (DDT in Atl. fishes & shellfishes)
- S 1510 (measurement of pollutant toxicity to fish)
- 1552 (decrease in DDT residues in young salmon)
- A 223 (combating pollution on Canada's E coast)
- Species, relict
- J 28(9): 1331 (zoogeographic problem re presence of relict *Pontoporeia affinis* amphipod in L. Washington, USA)
- S 1488 (new genus, species, & variety of dinoflagellates in Canadian arctic lakes)

- Springs, thermal
J 28(1): 73 (ecological energetics & natural history of biota, also chemistry of waters, Mt. Rainier Nat. Park, USA)
- Squalus acanthias* (see Dogfish, spiny (Atlantic); Dogfish, spiny (Pacific))
suckleyi (see Dogfish, spiny (Pacific))
- Squid (*Aburropsis* (*Watasenia*) *felis*)
J 28(4): 620 (300-mile N range extension on Pac. coast, as identified by beak shape)
- Squid, giant (*Architeuthis dux*)
S 1520 (*Hepatoxylon trichiuri* cestode from, Nfld., as clue to squid's feed)
- Squid, longfinned (Atlantic) (*Loligo peali*)
T 199 (survey off U.S. Atl. coast, 1969)
S 1544(F) (previously reported northern range (Nfld.) reduced to N.S.)
1546 (NW Atl. resources & fisheries)
- Squid, longfinned (Pacific) (*Loligo opalescens*)
T 257 (taken in 1970 B.C. trawl fishery)
- Squid, shortfinned (*Illex illecebrosus*)
T 199 (survey off U.S. Atl. coast, 1969)
S 1546 (NW Atl. resources & fisheries)
A 181 (ICNAF Canadian 1969 research summary)
194 (Nfld. fishery)
- Squids
J 28(4): 620 (300-mile N range extension on Pac. coast)
(11): 1796 (2 Pac. specimens of unusual type of gonatid; discussion of genera)
T 260 (standing crop, availability, weights, etc. from Scotian Shelf surveys, 1958-68)
- Sreedharan, Ayyappan
T 256 (Georges Bank scallop meat sizes)
- Srivastava, Vivien Mavis
T 261 (fish of Gulf of St. Lawrence)
- St. Andrews, N.B.
J 28(1): 59 (DDT residues in marine shellfishes)
- St. Clair, Lake (Ont. and Michigan)
J 28(8): 1133 (adult & juvenile walleye migrations through)
- St. Lawrence, Gulf of (see also Oceanography, Atlantic Coast)
J 28(7): 1009 (discreteness of Atl. herring populations of spring & autumn fisheries in S)
- B 177 (paralytic shellfish toxicity in)
T 204 (tagging & movements of male queen crabs)
261 (bibliography for 145 fishes)
271 (circulation patterns, June 1968 & Sept. 1969)
S 1464 (critique of aging herring by otoliths)
A 199 (marine geological investigations of sediments)
- St. Margaret's Bay, N.S.
J 28(7): 971 (ecological production & mathematical model of population for *Sagitta elegans* chaetognath)
(11): 1733 (production potential of seaweed-lobster community)
T 219 (physical oceanography)
252 (herring larvae ecology)
S 1482 (comparison with eutrophicated Bedford Basin, N.S.)
1539 (capacity to accept pollutants)
1579 (phytoplankton annual production)
- St. Mary's Bay (see Placentia Bay, Nfld.)
- St. Pierre, Lac, Que.
J 28(5): 786 (heavy-metal concentrations in dressed northern pike)
- Stainton, Michael Paul
J 28(2): 277 (surface sediment chemistry of FRB Experimental Lakes, NW Ont.)
S 1534 (mercury vapor for atomic absorption)
A 178 (determination of residual mercury in fish tissue)
- Staleness (see Quality of fishery products)
- Stamina (see Stress)
- Starfish, common (*Asterias forbesi*) (see also following heading)
J 28(9): 1225 (cadmium toxicity tests)
- Starfish, common (*Asterias vulgaris*) (see also preceding heading)
J 28(5): 793 (yellow phosphorus concentration by, N.S.)
(9): 1285 (methylmercury in, off N.S.)
T 217 (pollution from petroleum oil spills)
S 1569 (determination of residual fuel oil contamination in)
- Starfishes (Asteroidea; Ophiuroidea)
T 225 (associated with Bay of Fundy scallop beds)
- Starvation
J 28(4): 587 (effects on rainbow trout metabolism)
(11): 1757 (response of young sockeye salmon after)

- Statistical treatment of data (see Mathematical treatment of data)
- Steaks, fish
J 28(7): 1061 (practical small-scale commercial dryer)
A 203 (precooked in batter)
- Steele, Donald Harold
J 28(8): 1153 (Nfld. winter flounder)
- Stehnelais* (sigalionid Polychaeta)
J 28(10): 1393 (*S. fusca* & new species *S. berkeleyi* from E Pac.)
- Stein, David
J 28(9): 1349 (notacanthid collected off Oregon coast)
- Stephens, Kenneth Valentine Cory
S 1467 (dissolved nutrients automated measurement)
1504 (continuous measurement of turbidity)
- Steroids; Sterones (see also Cortisol; Hormones)
J 28(4): 477, 485 (histological effects on tissues of gonadectomized sockeye salmon)
S 1477 (identification & distribution of steroid-producing Ledig cell homolog in Atl. salmon testis)
1478, 1479 (interrenal histology & steroidogenesis in Atl. sturgeon)
1489 (blood proteins binding affinities for corticosteroids in 3 Atl. fishes)
1576 (corticosteroids & testosterone in Atl. sturgeon plasma)
A 214 (corticosterone sex hormones to accelerate maturation in fish farming)
- Sterols; Sterol esters (see also Cortisol; Hormones)
J 28(4): 477, 485 (histological effects on tissues of gonadectomized sockeye salmon)
(4): 606 (cholesterol content of juvenile coho salmon blood)
(10): 1675 (of *Terebratalia transversa* brachiopod)
S 1457 (desmosterol, cholesterol & minor sterols content of dulce & 3 other red seaweeds)
1459 (new sterol type (C₂₆) isolated from sea scallop)
1506 (identification of various sea scallop muscle)
1527 (of 14 crustacean species)
- Stevenson, James Cameron
J 28(2): 121 (foreword)
(10): 1360 (Edith & Cyril Berkeley — An appreciation)
B 177 (preface)
- Stewart, James Edward
CHN 40 (gaffkemia & storage temperatures re red crab)
41 (gaffkemia among stored lobsters)
42 (gaffkemia control in lobster storage facilities)
A 180 (gaffkemia of lobsters)
- Stickland, John Allan
T 253 (velocity and water temperature records, Strait of Georgia)
- Stickleback, blackspotted (*Gasterosteus wheatlandi*) (two-spine stickleback)
J 28(3): 427 (phylogeny, diagnostic features & range)
T 261 (bibliography for Gulf of St. Lawrence)
- Stickleback, brook (*Culaea (Eucalia) inconstans*)
J 28(3): 427 (phylogeny, diagnostic features, & range)
(6): 919 (temperature & light effects on pre-spawning)
- Stickleback, fourspine (*Apeltes quadracus*)
J 28(3): 427 (phylogeny, diagnostic features, & range)
T 261 (bibliography for Gulf of St. Lawrence)
- Stickleback, ninespine (*Pungitius pungitius*)
J 28(3): 427 (phylogeny, diagnostic features, & range)
T 261 (bibliography for Gulf of St. Lawrence)
- Stickleback, threespine (*Gasterosteus aculeatus*)
J 28(3): 427 (phylogeny, diagnostic features, & range)
(7): 999 (schooling vs. aggregation spacing & density)
(10): 1563 (new host of *Bomolochus cuneatus* copepod)
T 261 (bibliography for Gulf of St. Lawrence)
- Stickleback, twospine (see Stickleback, blackspotted)
- Sticklebacks
J 28(3): 427 (osteology re phylogenetic relations to tube-snouts; *Spinachia spinachia* diagnostic features & range)
- Stingray, roughtail (*Dasyatis centroura*)
T 261 (bibliography for Gulf of St. Lawrence)
- Stipe
J 28(5): 778 (length & presence of cavity re taxonomy of *Laminaria* seaweeds)
- Stizostedion canadense* (see Saugey)
vitreum vitreum (see Walleye)
- Stock; Standing stock (see also Abundance; Fisheries; Mortality; Populations; Recruitment; also names of organisms)
J 28(2): 215 (of periphyton in 4 small NW Ont. lakes)
(7): 1009 (discrete spring & autumn, in S Gulf of St. Lawrence herring fishery)
- CJG 18: 1 (Nfld. herring)
T 246 (bibliography of N America Pac. coast trawl fishery)
256 (Georges Bank scallops)
248 (zooplankton, re marine productivity)
S 1513 (zooplankton, re marine productivity)
1540 (Atl. cod; ICNAF Subareas 2 & 3)
1546 (probable underexploitation of NW Atl. squids)
- Stichaeus punctatus* (see Shanny, arctic)

- A 206 (ICNAF 1970-72 forecast for haddock) (12): 1899 (from formalin disinfection of young salmonids)
- Stocking
J 28(5): 663 (re worldwide introduction of rainbow trout)
- Stockner, John Gary
J 28(1): 73 (*Hedriodiscus truquii* (Diptera) energetics & history)
(2): 215 (periphyton in FRB Experimental Lakes, NW Ont.)
(2): 265 (diatoms in FRB Experimental Lakes, NW Ont.)
- Stomach (see also Digestion; Feed)
J 28(4): 485 (histological effects of hormones & cortisol on gonadectomized adult sockeye salmon)
B 177 (paralytic shellfish toxin in E Canada scallops)
- Stomach contents (see Digestion; Feed)
- Stoneflies (Plecoptera) (see also Insects, aquatic)
J 28(6): 849 (samplings from shallow stream beds)
S 1532, 1533 (of a high Colorado mountain creek)
- Stones, "holed" (see Geology)
- Storage (see also Chilling; Holding; Ice; Refrigeration; Sea water, refrigerated)
CHN 40 (recommended red crab live storage temperatures)
T 242 (harmful effects of mishandling on quality of sockeye salmon stored at sea for canning)
- Strait of... (see name of strait)
- Strasidine, George Alfred
J 28(11): 1817 (phosphatase activity in *Clostridium botulinum* spores and cells)
S 1585 (amylopectin accumulation in *Clostridium botulinum* type E)
- Streams & stream beds (see Benthos; Limnology; Sampling; Sediments; Spawning)
- Stress; Fatigue; Stamina (see also Activity; Handling; also other stress causes)
J 28(4): 527 (osmotic, in ribbed mussel re upper lethal temperatures)
(7): 1064 (effect of, in detecting masked bacterial & viral infections in fish)
(8): 1215 (changes in blood lactic acid concentration of alewives passing through fishway)
- Strickland, John Douglas Hipwell
J 28(4): 599 (obituary of)
- Strongylocentrotus* (see Sea urchin)
- Strontium derivatives
S 1529 (distribution in L. Ontario)
A 232 (⁹⁰Sr as radioactive marine pollutant)
- Sturgeon, Atlantic (*Acipenser oxyrinchus*)
T 261 (bibliography for Gulf of St. Lawrence)
S 1478, 1479 (interrenal histology & steroidogenesis studies)
1576 (plasma corticosteroids & testosterone)
- Sturgeon, green (*Acipenser medirostris*)
T 257 (in B.C. & U.S. Pac. coast commercial trawling, 1970)
- Sturgeon, lake (*Acipenser fulvescens*)
T 261 (bibliography for Gulf of St. Lawrence)
A 201 (mercury contamination, Great Lakes)
- SubbaRao, Durvasula Venkata
S 1538 (marine energy flow)
- Subspeciation (see Speciation)
- Sucker, largescale (*Catostomus macrocheilus*)
J 28(4): 533 (*columnaris* disease re fish ladders)
- Sucker, longnose (*Catostomus catostomus*)
J 28(1): 45 (populations upstream & downstream of a dammed Ont. lake)
(1): 105 (DDT residues in muscle, of Saskatchewan R.)
(11): 1745 (biochemical & cytological study)
T 261 (bibliography for Gulf of St. Lawrence)
A 200, 201 (mercury contamination in Canadian waters)
- Sucker, white (*Catostomus commersoni*)
J 28(1): 105 (DDT residues in muscle, of Saskatchewan R.)
(7): 957 (vulnerability to northern pike predation)
(7): 1061 (practical drying equipment for fillets & steaks; proximate analysis of dried steaks)
(9): 1325 (postmortem changes in muscle glyco-gen phosphorylase activity)
(11): 1745 (biochemical & cytological study of large & dwarf forms)
T 226 (mortalities from *Aeromonas liquefaciens* disease in NW Miramichi R., N.B.)
261 (bibliography for Gulf of St. Lawrence)

- Sugars; Sugar derivatives (*see also* Glucan; Glucose; Saccharides)
 J 28(8): 1173 (hexose, hexosamine, & fucose levels in Pac. salmon, trouts, & bovine blood sera)
- Sulphate (for general data re natural waters, *see* Limnology; Oceanography)
- Sulphides
 T 245 (hydrogen sulphide possible natural cause of multispecies mortality in tidal Nitinat L., B.C.)
 255 (sodium sulphide toxicity tests on brook trout)
 S 1500 (principal pollutant gas from B.C. coastal water sediments close to pulp mills; formation from sediments by *Desulfovibrio desulfuricans*)
 1561 (sulphydryl content of rabbit & rainbow trout myosins re protein stability)
- Sulphite (*see also* Pollution; Pulp mill effluents)
 T 255 (toxicity tests on brook trout)
- Sunde, Leif Axel
 T 165(F) (central Canada rainbow trout farming)
- Sunfish, bluegill (*see* Bluegill)
- Sunfish, green (*Lepomis cyanellus*)
 J 28(4): 610 (dieldrin pesticide concentration in blood & brain)
 (7): 957 (vulnerability to northern pike predation)
 (11): 1811 (alkali tolerance in Nebraska eutrophic lakes & ponds)
- Sunfish, ocean (*Mola mola*)
 J 28(3): 323 (morphology of *Lepeophtheirus* copepod parasites)
 T 261 (bibliography for Gulf of St. Lawrence)
- Sunfish, redbreast (*Lepomis auritus*)
 J 28(9): 1285 (methylmercury in N.B.)
- Superchilling; Supercooling (*see also* Chilling)
 J 28(5): 745; (12): 1915 (cryo-preserved sperm for fertilizing salmonid eggs)
 (8): 1217 (re ultrasonic method for distinguishing thawed frozen fish from fresh fish)
 T 242 (effects of storing sockeye salmon in refrigerated sea water re quality of canned product)
 S 1590 : 533 (survival of fishes after supercooling: review)
 A 203 (resume of T 242 above)
- Superior, Lake (*see also* Great Lakes)
 J 28(1): 65 (lake trout population biology before lamprey invasion)
 (5): 771 (rainbow trout life history, Batchawana Bay)
- Surgery
 J 28(5): 635 (physiological effects on brook trout)
- Surveys (*see also* names of International Commissions)
 T 199 (otter-trawl catches, U.S. Atl. coast, 1969: over 100 species; not individually indexed)
 210, 221, 269 (observations during groundfish trawling cruises off B.C. & Washington coasts, 1970-71)
 213 (observations during B.C. herring surveys, 1969)
 225 (fauna associated with sea scallops in dredging surveys, Bay of Fundy)
 246 (bibliography of N America Pac. coast trawl fishing)
 A 184 (aerial, of harp seal, & general, of ringed seal, in Canadian Arctic)
 204 (origin of N Pac. Ocean salmon & steelhead trout)
 206 (re haddock)
 207, 219 (Atl. herring egg distribution & abundance)
 220 (C.S.S. *Hudson* oceanographic cruise circumnavigating N & S America)
- Survival (*see also* Lethal limits; Mortality; Pollution; Tolerance)
 J 28(3): 335 (of bacteria ingested by tubificid oligochaetes)
 (3): 343 (salinity effects on pre-smolt coho salmon)
 (4): 465 (lake char during Pleistocene glaciation in N America)
 (4): 527 (of ribbed mussels during low-tide exposures)
 (5): 647 (pink salmon eggs transplanted to Qualicum R., B.C.)
 (6): 924 (temperature requirements for larval lake cisco)
 (7): 1057 (larval & young fish in warm discharge canal of nuclear power plant)
 (8): 1119 (low oxygen concentration effects on fathead minnow fry)
 (11): 1811 (freshwater fishes in alkaline eutrophic Nebraska lakes & ponds)
 S 1590 : 533 (of fishes after supercooling; review)
 A 184 (harp seal in Canadian Arctic)
- Susquehanna River, Pennsylvania and Maryland
 J 28(6): 911 (contribution of particulate carbon & nitrogen to Chesapeake Bay, Md.)
- Sutterlin, Arnold Martin
 J 28(4): 491 (hypoxic responses in the sea raven)
 (4): 565 (olfactory epithelial responses)
 S 1550 (proprioceptors in gills of teleosts)
- Sutterlin, Natalie
 J 28(4): 565 (olfactory epithelial responses)
- Swimmers' itch
 A 58(F) (cause, control, & treatment)

Swimming; Swimming speed

- J 28(4): 587 (rainbow trout speed re metabolism)
(8): 1143 (parasitic copepods locomotory mechanisms)
S 1590 : 548 (speed, of various fishes re temperature; review)

Swordfish (*Xiphias gladius*)

- J 28(1): 31 (cestode & trematode parasites in N Atl.)
(7): 947 (blood pathways effects on blood-pressure drop in gills)
T 261 (bibliography for Gulf of St. Lawrence)
273 (halogenated hydrocarbon residues detected in)
A 182 (ICNAF Canadian 1969 research summary)

Sydney Harbour, N.S.

- S 1584 (herring mortality from coke-oven intermediate oil pollution in N)

Syllides (see also Polychaeta)

- J 28(10): 1469 (new species *Syllides benedicti*, descriptions of 6 other species, & key to genus)
(10): 1459 (seasonal settlement on test panels)

Symbionts

- J 28(3): 391 (incomplete, of red-water ciliate *Mesodinium rubrum*)

Symons, Philip Edward Kyrle

- J 28(7): 999 (spacing in schooling fish)
(11): 1805 (estimating distances in schooling aquarium fish)
S 1555 (claw-shuddering behaviour of shore crab)

Sympatry

- J 28(9): 1259 (vs. allopatry re feed & habits of Dolly Varden & cutthroat trouts in 3 B.C. lakes)
S 1547 (brown & brook trout ecology in a Nfld. stream)

Syngnathus fuscus (see Pipefish, northern)

Synonymy (see Nomenclature; Taxonomy)

Syrett, Roll Frederick

- J 28(6): 924 (temperature requirements for larval ciscos)

Syringe

- S 1534 (for transferring mercury vapour in mercury assays)

Systellaspis (caridean shrimps)

- J 28(10): 1615 (*S. braueri* new record, off B.C. coast)

Systematics (see Genera; Keys; Nomenclature; Phylogeny; Speciation; Species; Taxonomy)

T

Tabata, Susumu

- T 253 (velocity & water temperature records, Strait of Georgia)

Tadpole, sea (*Careproctus reinhardi*)

- T 261 (bibliography for Gulf of St. Lawrence)

Tagging methods, returns, losses, and interpretation (see also Marking; Migration; for "biological tags" see Indicator species)

- J 28(1): 49 (salamanders with toe clips)
(3): 351 (Miramichi R., N.B., salmon to ascertain relative utilization rates by angling vs. maritime commercial fisheries)
(3): 369 (multivariate analysis of X-ray spectroscopic chemical element composition as "natural tag")
(3): 383 (re homing of tidepool sculpin)
(4): 537 (jaw tagging effects on landlocked Atl. salmon growth & scale characteristics)
(8): 1133 (adult & juvenile walleye re migrations between L. Huron & L. Erie)
(10): 1583 (possibilities of radioisotope X-ray fluorescence spectrometry: review)
CJG 18: 20 (herring: results in SW Nfld. waters)
T 204 (male queen crabs, Gaspé region of Gulf of St. Lawrence)
246 (bibliography of N America Pac. coast trawled fishes)
250 (computer programming history data)
S 1492 (haddock movements off Digby, N.S.)
1581 (harp seal)
A 192 (Atl. salmon off Greenland)
204 (Pac. salmon & steelhead trout during INPFC studies, 1965)

Tail

- J 28(1): 95 (differential growth in big skate embryos, re respiration mode)

Tanks (see also Aquaria)

- J 28(8): 1196 (digital recorder monitoring of dissolved oxygen in)
CHN 42 (disinfecting lobster-holding, against gaff-kemia lobster disease bacteria)
T 243 (sablefish culture)

Tapeworms (see Cestoda)

Tapirfish, largescale (see Eel, spiny)

Tardigrada

- S 1532 (of a high Colorado mountain creek)

Taricha granulosa (see Newt)

- Tarr, Hugh Lewis Aubrey
J 28(10): 1603 (ribonucleotide reductase in salmon testes)
S 1523 (fish muscle phosphorylases)
1525 (fish liver enzymes)
1560 (deoxyribonucleic acid polymerase from salmon testes)
A 203 (seafood sanitation and quality)
218 (fisheries research)
- Taste panels (see Quality of fishery products)
- Tautoglabrus adspersus* (see Cunner)
- Taxonomy; Synonymy; Systematics (see also Family; Genera; Keys; Nomenclature; Phylogeny; Speciation)
J 28(1): 23 (status of adult male *Calanus finmarchicus* re *C. glacialis* copepods)
(3): 323 (*Lepeophtheirus* vs. *Dentigryps* parasitic caligid copepods)
(3): 391 (red-water *Mesodinium* ciliates, & key)
(3): 427 (osteology of tube-snouts & sticklebacks re their phylogeny & speciation)
(4): 517 (*Vibrio anguillarum* bacterium; correction on J 28(8): 1219)
(5): 778 (*Laminaria* seaweeds re stipe length & environment)
(7): 987 (western N America *Salmo* species & subspecies)
(10): 1373 (revision of *Metavermilia* serpulid polychaetes)
(10): 1583 (possibilities of radioisotope X-ray fluorescent spectrometric analysis: review)
(10): 1595 (arguments for classifying *Veella* as hydroids)
(10): 1621 (northern rockfish)
(10): 1645 (*Rhabdochona* parasitic nematode species in N & central America)
(11): 1796 (need for redefinition of gonatid squid family)
T 200 (possibilities of X-ray fluorescence spectrophotometry of elemental composition of organisms re their classification)
231 (arctic charrs)
S 1499 (caligid copepod *Caligus rapax*)
1533 (chironomids in a high mountain brook, Colorado)
1588 (*Harnischia* chironomids)
1589 (fossil & contemporary Dinophyta secreting discoasters)
- Taylor, Frank John Rupert
J 28(3): 391 (red-water ciliate *Mesodinium rubrum*)
- Taylor, Frederick Henry Carlyle
J 28(10): 1663 (recorded distribution of herring from seal stomachs)
T 213 (1969-70 B.C. offshore herring survey)
- Teeth
J 28(9): 1309 (formation & use for aging, in white whale)
- A 229 (aging whales & other mammals by layered structure of: book review)
- Temora longicornis* (see Copepoda)
- Temperature (see also Temperature, reactions to)
(Note: The numerous data for temperature of natural waters routine observations are not indexed unless having special significance. See Limnology; Oceanography)
J 28(1): 100 (plotting bathythermograph transect data on a computer printer)
T 219 (regime in waters of St. Margaret's Bay N.S.)
253 (observations from moored instruments, with examples of records, Strait of Georgia, 1968-70)
S 1461 (thermistor readout monitoring system for cold storage temperatures)
1542 (& salinities in E Nfld. waters)
A 204 (N Pac. Ocean surface, 1950-1965)
- Temperature, reactions to and effects of
J 28(4): 527 (upper lethal temperatures re osmotic stress in ribbed mussel)
(4): 587 (re rainbow trout active & standard metabolism)
(5): 727 (re petrale sole embryonic development)
(6): 883 (effects on Pac. cod eggs development re geographical distribution)
(6): 919 (prespawning brook sticklebacks, Roseau R., Man.)
(6): 924 (re larval lake cisco growth & survival)
(7): 935 (effects on seasonal components of fish communities in Passamaquoddy Bay, N.B., & in warmer waters)
(7): 971 (re *Sagitta elegans* chaetognath life history, St. Margaret's Bay, N.S.)
(7): 1057 (mortality vs. survival of larval & young fish in warm water of nuclear power plant discharge canal)
(10): 1545 (effects on Pac. herring early development)
(10): 1459 (re polychaetes settlement on test panels)
(11): 1739 (young rainbow trout & chinook salmon re *columnar* disease susceptibility)
(11): 1801 (rainbow trout fingerlings preferences in horizontal & vertical temperature gradients)
CHN 40 (recommended red crab live storage temperatures)
T 231 (re arctic char in a small arctic lake)
236 (re mud dab egg & larvae development)
243 (tank-cultured sablefish)
262 (ecological problems re hot effluent water from steam-electric power plants)
S 1556 (effects on Atl. salmon & brook trout brain tissue oxygen consumption)
1557 (effects on crayfish ovarian maturation & egg laying)

- 1590 (habitat temperature re body temperature of fishes: review)
- A 222 (acclimation to, by salmonids, as affected by DDT pollutant)
- Templeman, Wilfred
- T 160 (additional data on Atl. *Lepidion*)
- 192 (additional data on characteristics of Greenland halibut)
- S 1542 (eastern Nfld. area temperatures and salinities)
- A 181 (reports on researches in ICNAF area, 1969)
- Tennant, Alan Dawson
- B 177 (E Canada paralytic shellfish poisoning)
- Tentacles
- J 28(10): 1595 (concert behaviour of *Veella*)
- Terebratalia* (see Brachiopoda)
- J 28(10): 1675 (*T. transversa* sterols)
- T 225 (*T. septentrionalis* associated with Bay of Fundy scallop beds)
- 268 (*T. transversa*, *T. crossei*, & *T. unguicula* in B.C. faunistic surveys since 1960)
- Terhune, Lorne Donald Bruce
- J 28(7): 1062 (detecting burrowed lobster)
- Territorialism (see Aggression; Behaviour; Spawning)
- Testes (see also Hermaphroditism; Hormones; Maturity; Reproduction; Sperm)
- J 28(4): 477, 485 (hormones effects on gonadectomized sockeye salmon)
- (8): 1191 (fatty acids & amino acids of Dungeness crab)
- (10): 1603 (ribonucleotide reductase in immature sockeye salmon)
- S 1477 (identification & distribution of Leydig cell homolog in sexually mature Atl. salmon)
- 1508 (purification & properties of acid deoxyribonuclease from chinook salmon)
- 1560 (deoxyribonucleic acid polymerase from sockeye salmon)
- 1562 (major hormones in plasma of sexually maturing Atl. salmon)
- Testosterone and derivatives (see Hormones)
- Tetrapturus audax* (see Marlin, striped)
- Texture (of flesh) (see Firmness; Quality of fishery products)
- Thais lapillus* (see Dogwinkle, Atlantic)
- Thaleichthys pacificus* (see Eulachon)
- Thawing
- J 28(8): 1217 (distinguishing thawed frozen fish from fresh fish)
- Theragra chalcogramma* (see Pollock, walleye)
- Thermal power plants (see also Nuclear Power plants)
- T 262 (ecological problems re effluent disposal from steam-electric plants)
- Thermocline (Note: The numerous data for thermoclines in natural waters routine observations are not indexed unless having special significance. See Limnology; Oceanography; Temperature)
- J 28(2): 163 (in numerous small NW Ont. lakes)
- Thermocouple (see Thermostat)
- Thermograph (see Apparatus; Bathythermograph; Limnology; Oceanography; Temperature)
- Thermostat; Thermocouple
- S 1461 (thermistor readout monitoring system for cold storage temperatures)
- Thlewiaza River, N.W.T.
- S 1573 (occurrence of harbour seals in upper lakes of)
- Thomas, Martin Lewis Hall
- S 1580 (classification of P.E.I. benthic samples)
- A 109(F) (control of eelgrass by 2,4-D)
- Thomson, John Arthur Collingwood
- T 212 (IBM programs for multiple discrimination analysis)
- 230 (Pac. Ocean transport charts, 1969)
- 237 (weight-length relationship for Pac. ocean perch)
- 238 (N Pac. Ocean transport computations, 1970)
- 239 (N Pac. Ocean transport computations, 1969)
- 240 (N Pac. Ocean transport charts, 1970)
- Thorne, Richard Eugene
- J 28(9): 1269 (investigations re echo voltage and fish density)
- (9): 1275 (estimation of hake population by echo integrator)
- Thornyhead, longspine (*Sebastolobus altivelis*) (longspine channel rockfish)
- T 246 (bibliography)

- Thornyhead, shortspine (*Sebastolobus alascanus*) (short-spine channel rockfish; spinycheeked rockfish)
 T 221 (catches during B.C. groundfish surveys)
 246 (bibliography)
 257 (taken in B.C. trawl fishery, 1970)
- Thunnus alalunga* (see Albacore)
albacares (see Tuna, yellowfin)
obesus (see Tuna, bigeye)
thynnus (see Tuna, bluefin)
- Thymallus arcticus* (see Grayling, arctic)
- Thyroid gland
 J 28(4): 477 (histological effects of hormones & cortisol on gonadectomized sockeye salmon)
- Thysanoëssa* (see Euphausiids)
- Tibbo, Simeon Noel
 J 28(7): 1009 (Atl. herring populations)
 S 1464 (use of otoliths for aging herring)
 1584 (fish kill from coke-oven oil)
 A 207 (Atl. herring fisheries)
- Tides (see also Currents; Oceanography)
 T 219 (St. Margaret's Bay, N.S.)
 S 1539 (re capacity of estuaries to accept pollutants; use of dyes to follow flushing action)
- Tilapia (*Tilapia mossambica*)
 J 28(9): 1342 (measuring CO₂ production & respiratory quotient)
- Tin derivatives
 J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
- Titanium derivatives
 J 28(2): 277 (in sediments of 13 small NW Ont. lakes)
- Tocopherol
 S 1480 (composition of *Porphyridium cruentum* unicellular red alga)
- Todd, Ian St. Pierre
 J 28(6): 821 (gillnet selectivity on sockeye & pink Skeena R. salmon)
- Tolerance (see also Lethal limits; also factors involving tolerance reactions, e.g. Oxygen, dissolved; Pollution; Salinity, reactions to; Survival; Temperature, reactions to)
 J 28(8): 1071 (*Clostridium botulinum* to sodium chloride)
 (9): 1327 (of copepods to particulate oil from fuel oil marine spills)
 (10): 1545 (Pac. herring eggs & early larvae to temperature & salinity combinations)
 (11): 1811 (of freshwater fishes to alkalinity in eutrophic Nebraska lakes & ponds)
- B 177 (human, to paralytic shellfish poison)
 T 202 (river diatoms towards heavy-metal pollution)
 S 1590 : 518 (fishes to environmental temperature; review)
- Tomales Bay, California
 J 28(7): 1051 (white seaperch maturity & fecundity)
- Tomcod, Atlantic (*Microgadus tomcod*)
 J 28(1): 59 (DDT residues in N.B.)
 (7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
 T 261 (bibliography for Gulf of St. Lawrence)
- Tomcod, Pacific (*Microgadus proximus*)
 T 246 (bibliography)
 257 (taken in 1970 B.C. trawl fishery)
- Tomlinson, Neil
 T 220, 242 (storage of Pac. salmon at sea)
- Tooth (see Teeth)
- Torpedo californica* (see Ray, Pacific electric)
- Towers, George Hugh Neil
 S 1491 (fission of phenylalanine by marine algae)
- Toxicants; Toxicity (see also Insecticides; Pesticides; Piscicides; Pollution; also names of toxic elements)
 J 28(1): 59 (levels of DDT residues in some Atl. coast food fishes & shellfishes)
 (8): 1071 (sodium chloride effects on *Clostridium botulinum* toxin production in Pac. cod flesh homogenates)
 (11): 1789 (melanin distribution in butter clam re retention of paralytic shellfish toxin)
 B 177 (paralytic shellfish toxin: nature; anatomical distribution; assay method)
 T 217 (petroleum oil characterization re tracing origin of fuel oil spills affecting aquatic environments)
 218 (antibacterial effects of sea water)
 255 (yellow phosphorus production wastes, e.g., phosphorus, fluosilicic acid, cyanide, etc. to fishes)
 258 (trisodium nitrilotriacetate as replacement for phosphate detergents: tests on aquatic life)
 272 (halogenated hydrocarbons to fishes & birds)
 S 1484 (molecular structure of halogenated mononitrophenols re piscicide activity)
 1510 (applying bioassay results to pollutant toxicities towards fish: review)
 1558, 1570 (polychlorinated biphenyls in sea water to *Gammarus oceanicus* amphipod)
 A 201 (*Botulinus* toxin transmitted from fishes to their predators)
 203 (developed by fish-spoiling organisms)
- Toxins (see Toxicants)

- Trace elements (*see* Pollution; *also* names of elements)
Composition, chemical; Nutrients (aquatic);
246 (bibliography of fishery & groundfish, N
American Pac. coast)
260 (catch availability & 1958-68 surveys data,
groundfish on Scotian Shelf)
S 1493 (assessment of effects of Atl. cod nets mesh
size increases)
1540 (cod catches per unit effort in ICNAF
Subareas 2 & 3)
1541 (American plaice catches per unit effort in
ICNAF Subarea 3)
- Tracking (*see also* Echolocation; Marking; Migration;
Sounding, echo; Tagging)
S 1539 (currents with dyes, re ability to flush away
pollutants)
1581 (harp seals)
A 184 (harp seals)
- Transferases (*see* Enzymes; Genetics)
- Translation indexes
T 246 (bibliography re N America Pac. coast
trawled fishes)
- Transparency of natural waters (*see also* Limnology;
Oceanography; Radiation, solar; Turbidity)
J 28(2): 129, 157, 231 (small lakes in NW Ont.)
T 265 (Frobisher Bay, Baffin Is., N.W.T.)
- Transplantation (*see also* Species, introduced)
J 28(5): 647 (results for 3 generations from pink salm-
on eggs, from B.C. mainland to Vancou-
ver Is.)
(7): 1019 (role of social behaviour when hatchery
rainbow trout released into a stream)
(12): 1857 (B.C. & U.S. kokanee into L. Huron)
A 181 (research summary on success of B.C. pink
salmon, to Nfld.)
209 (sea otters from Alaska to B.C.)
- Transport, mass (of waters) (*see also* Currents, marine;
Oceanography)
T 230, 240 (N Pac. Ocean Ekman transport charts
1969, 1970)
238, 239 (N Pac. Ocean Ekman & other transport
calculations, 1970, 1969)
- Transportation
A 203 (fish to processing plants, including frozen
fish by air)
- Trap; Pot
J 28(8): 1209 (2 simple durable collectors for epi-
fauna)
S 1518 (for prawns)
A 128(F) (experimental prawn trap fishing, B.C.)
- Trawling; Trawls
J 28(10): 1615 (B.C. coastal surveys resulting in 1
new species & 4 new B.C. records of caridean
shrimps)
T 199 (otter-trawl survey catches, U.S. Atl. coast,
1969)
210, 221, 269 (groundfish surveys off B.C. & Washing-
ton coasts, 1970-71)
216, 257 (summary of B.C. & U.S. Pac. coast com-
mercial fishery, 1969, 1970)
- Traxler, Garth Stanley
J 28(1): 104 (skin lesions of rainbow trout)
- Trematoda (*see* Flukes)
- Tretiak, Daniel Nicholas
J 28(7): 1005 (walleye malate dehydrogenase)
- Triaenophorus* (*see* Cestoda)
- Trichodon trichodon* (*see* Sandfish, Pacific)
- Trichogaster trichopterus* (*see* Gourami, blue)
- Trichoptera (*see* Caddisflies)
- Triclad (*see* Turbellaria)
- Triglops murrayi* (*see* Sculpin, moustache)
pingeli (*see* Sculpin, ribbed)
- Triglycerides (*see* Glycerides; Lipids; Oils and fats)
- Trimethylamine (TMA) (*see also* Amines; Dimethyla-
mine)
J 28(1): 1 (possible precursor of dimethylamine in
stored frozen fish muscle)
(3): 305 (production from TMA oxide by bacte-
ria in chilled haddock fillets)
- Trimethylamine oxide (*see* Trimethylamine)
- Trites, Ronald Wilmot
T 219 (physical oceanography of St. Margaret's
Bay)
271 (Gulf of St. Lawrence circulation patterns)
S 1539 (capacity of an estuary to accept pollutants)
- Tritium (*see* Hydrogen)
- Tropocyclops (*see* Copepoda)
- Trout, Apache
J 28(7): 987 (probable ancestry; meristic characters
re western N America *Salmo*)

- Trout, brook (*Salvelinus fontinalis* (speckled trout))
 J 28(1): 100 (device for rapidly removing embryos from eggs)
 (3): 452 (world distribution; native & introduced)
 (3): 458 (response of populations to a fishery)
 (4): 509 (skin & flesh colour enhancement when fed shrimp & crab wastes plus carotenoid)
 (5): 625, 635 (physiological effects of handling, tricaine methane sulphonate anesthetization, & surgery)
 (5): 655 (long-term effects of copper sulphate concentrations on adults, eggs, & fry)
 (6): 801 (re fish growth efficiency analysis)
 (7): 1064 (infectious pancreatic necrosis virus in feces vs. organs; effect of stress)
 (8): 1113 (calorie-to-protein ratio of rations re energy requirements)
 (9): 1285 (methylmercury in N.B.)
 T 255 (toxicity tests with yellow phosphorus production wastes)
 261 (bibliography for Gulf of St. Lawrence)
 S 1547 (ecological interactions with brown trout in a Nfld. stream)
 1556 (temperature effects on brain tissue oxygen consumption)
 A 222 (pollutants effects on physiology & behaviour)
- Trout, brown (*Salmo trutta*)
 J 28(9): 1285 (trimethyl mercury in N.B.)
 S 1545 (electrophoretic analysis of protein & esterase systems of hybrids with Atl. salmon)
 1547 (ecological interactions with brook trout in a Nfld. stream)
- Trout, coastal cutthroat (*Salmo clarki clarki*)
 J 28(7): 987 (re systematics & evolution of western N America *Salmo*)
 S 1563 (& rainbow trout, re multiple hemoglobins subunit structures & molecular basis)
- Trout, cutthroat (*Salmo clarki*)
 J 28(1): 112 (leukemia manifestations in)
 (7): 987 (meristic characters re systematics & evolution of western N America *Salmo*)
 (8): 1173 (glycoproteins constituents levels in blood sera)
 (9): 1259 (sympatry & allopatry with Dolly Varden, re feed & habits in 3 B.C. lakes)
- Trout, Dolly Varden (see Dolly Varden)
- Trout, golden (*Salmo aguabonito aguabonito*) (*Salmo mykiss aguabonito*; *Salmo "roosevelti"*)
 J 28(7): 987 (meristic characters in Kern R. Basin, Calif., re systematics & evolution of western N America *Salmo*; also hybridization)
- Trout, Heenan Lake (*Salmo clarki henshawi*)
 J 28(7): 987 (re systematics & evolution of western N America *Salmo*)
- Trout, Kern River (*Salmo aguabonito gilberti*) (*Salmo gairdneri gilberti*; *Salmo whitei*)
 J 28(7): 987 (meristic characters in Kern R. Basin, Calif., re systematics & evolution of western N America *Salmo*; also hybridization)
- Trout, lake (*Salvelinus (Cristivomer) namaycush*) (char; lake char)
 J 28(1): 65 (population biology in L. Superior before lamprey invasion)
 (3): 448 (subcutaneous fibroma in Que. lake trout)
 (4): 465 (intraspecific variations & postglacial distribution)
 (6): 815 (mathematical simulation model for growth efficiency)
 (9): 1285 (methylmercury in N.B.)
 T 176 (bibliography, 1929-1969)
 S 1490 (history of Great Lakes fishery re lamprey invasion)
 A 200 (mercury contamination, Pinchi L., B.C.)
 201 (mercury contamination, Great Lakes)
- Trout, rainbow (*Salmo gairdneri*) (when anadromous, see Trout, steelhead; see also Trout, rainbow (*Salmo irideus*))
 J 28(1): 104 (morphology of proteolytic pseudomonad from skin lesions)
 (4): 587 (factors influencing scope for activity & active & standard metabolism, for wild vs. hatchery)
 (5): 663 (world distribution)
 (5): 771 (life history in Batchawana Bay, E L Superior)
 (6): 875 (Egtved virus antibody development in)
 (7): 947 (blood pathway effects on blood-pressure drop in gills)
 (7): 987 (meristic characters re systematics & evolution of western N America *Salmo*)
 (7): 1015 (lysosomal triglyceride lipase from lateral line tissue)
 (7): 1019 (role of social behaviour in dispersal of introduced)
 (8): 1173 (glycoproteins constituents levels in blood sera)
 (8): 1181 (growth & fecundity after eyed-embryo exposure to X-rays)
 (9): 1253 (antibody production & immunity responses to *columnaris* disease)
 (10): 1609 (circulatory & ventilatory responses to gills artificial manipulation)
 (11): 1739 (susceptibility to *columnaris* disease)
 (11): 1801 (fingerlings temperature selection in vertical & horizontal gradients)
 (12): 1899 (stresses caused by formalin disinfection of young)
 (12): 1847 (experience effect on predation by)
 (12): 1918 (abnormal body curvatures in Norwegian fry)
 (12): 1837 (lysocleithin solubilizing effect on tissues extractability)

- T 165(F) (farming in central Canada)
245 (mortality, from uncertain cause, Lardeau R., B.C.)
261 (bibliography for Gulf of St. Lawrence)
S 1458 (liver glycosyl transferase re liver glycogen structure)
1484 (molecular structure of halogenated mononitrophenols re their toxicity to fingerlings vs. sea lamprey larvae)
1509 (accelerated denaturation of muscle myosin in frozen solution)
1525 (liver pyrimidine deoxynucleoside phosphorylase & deoxyribosyltransferase)
1554 (respiratory pumps responses to hypoxia)
1561 (sulphydryl content of myosins re protein stability)
1563, 1571 (polypeptides re multiple hemoglobins subunit structures & molecular basis)
A 200 (mercury contamination)
- Trout, rainbow (*Salmo irideus*) (see also Trout, rainbow (*Salmo gairdneri*))
J 28(12): 1918 (abnormal body curvatures in inbred fry, Norway)
- Trout, speckled (see Trout, brook)
- Trout, steelhead (*Salmo gairdneri*) (steelhead salmon, as anadromous rainbow trout; see also Trout, rainbow)
J 28(12): 1915 (egg fertilization with cryo-preserved sperm)
CNG 91 (age & size in Vancouver Is. stream-anglers' catches)
A 204 (catches during INPFC studies, 1965)
- Trouts (in general) (see also names of species)
J 28(7): 987 (systematics & evolution of western N America *Salmo*)
S 1502 (automatic wet-feed dispenser for fry)
- Trust, Trevor John
J 28(8): 1185 (commercial fish diet bacterial counts)
- Tsuyuki, Hiroshi
J 28(10): 1621 (taxonomy, distribution & biology of northern rockfish)
(11): 1745 (biochemical & cytological study of suckers)
S 1563 (trout hemoglobins)
1571 (molecular basis for multiplicity of Pac. salmon hemoglobins)
- Tube-building
J 28(10): 1433 (re feeding motions of mouth in a terebellid polychaete)
- Tube-snout (*Aulorhynchus flavidus*)
J 28(3): 427 (phylogeny, diagnostic features & range)
- Tube-snouts
J 28(3): 427 (osteology re phylogenetic relations to sticklebacks; *Aulichthys japonicus* diagnostic characters & range)
- Tubeworms (see Polychaeta)
- Tubifex tubifex* (tubificid oligochaete)
J 28(3): 335 (survival of bacteria during ingestion by, in Toronto Harbour, Ont., sediments)
- Tubificidae (see also Oligochaeta; *Tubifex*)
S 1543 (of Georgian Bay, L. Ontario, & L. Erie; with key)
- Tullibee (see Cisco, lake)
- Tumours (see also Disease)
J 28(1): 112 (in cutthroat trout re leukemic condition)
(3): 448 (subcutaneous fibroma in lake trout)
(9): 1241 (incidence and comparisons of, in Pleuronectidae of Bellingham Bay, Wash.)
- Tuna, bigeye (*Thunnus obesus*)
A 182 (ICNAF Canadian 1969 research summary)
- Tuna, bluefin (*Thunnus thynnus*)
J 28(5): 995 (blood pathway effects on blood-pressure drop in gills)
(7): 1053 (genic polymorphism of blood & tissues tetrazolium oxidase)
T 261 (bibliography for Gulf of St. Lawrence)
272 (halogenated hydrocarbon residues detected in)
A 182 (ICNAF Canadian 1969 research summary)
- Tuna, skipjack (*Euthynnus (Katsuwonus) pelamis*) (skipjack)
J 28(7): 947 (blood pathway effects on blood-pressure drop in gills)
T 272 (halogenated hydrocarbon residues detected in)
A 182 (ICNAF Canadian 1969 research summary)
- Tuna, yellowfin (*Thunnus albacares*)
J 28(7): 947 (blood pathway effects on blood-pressure drop in gills)
T 272 (halogenated hydrocarbon residues detected in)
A 182 (ICNAF Canadian 1969 research summary)
- Tunicates
T 225 (associated with Bay of Fundy scallop beds)
- Turbellaria (flatworms)
J 28(1): 7 (chemical composition & food reserves seasonal changes in freshwater triclad *Dugesia tigrina*)

- (6): 849 (sampling from shallow stream bed)
 (8): 1198 (supernumerary copulatory organs in *D. tigrina*)
 S 1532 (*Polycelis coronata* of a high Colorado mountain creek)
- Turbidity of natural waters (see also Transparency)
 S 1504 (continuous nephelometric measurement of sea water)
- Turbot, diamond (*Hypsopsetta guttulata*)
 T 246 (bibliography)
- Turbot, Greenland (see Halibut, Greenland)
- Turbot, hornhead (*Pleuronichthys verticalis*)
 T 246 (bibliography)
- Turbot, Pacific (see Flounder, arrowtooth)
- Turbulence (see Currents; Tides)
- Tursiops truncatus* (see Porpoise, bottlenose)
- Tyler, Albert Vincent
 J 28(7): 935 (fish community components)
 (11): 1727 (movement of flounder into intertidal zone)
- U**
- Ultrasonics
 J 28(8): 1167 (tracking net-avoidance by fish)
 (8): 1217 (re distinguishing thawed frozen fish from fresh fish)
 A 220 (bio-acoustic program during C.S.S. *Hudson* oceanographic survey circumnavigating N & S America)
- Ulvaria subbifurcata* (see Shanny, radiated)
- Union of Soviet Socialistic Republics (USSR)
 T 210 (observation of trawling catches off B.C. & Washington coasts, by FRB groundfish surveys)
 246 (bibliography of trawl fishery off N America Pac. coast)
- United States of America (see also certain names of States)
 T 246 (bibliography of trawl fishery off N America Pac. coast)
- Unloading (of fish)
 A 203 (pumping methods for, from boats)
- Uranium derivatives
 J 28(5): 786 (in dressed Canadian fishes from industrial area lakes)
- Urea
 J 28(4): 606 (juvenile coho salmon blood urea nitrogen content)
- Uria aalgae* (see Guillemot, common)
- Uronema* (see Ciliata)
- Urophycis chesteri* (see Hake, longfin)
chuss (see Hake, red)
regius (see Hake, spotted)
tenuis (see Hake, white)
- Urosalpinx cinerea* (see Oyster drill, Atlantic)
- Uschakov, P. V.
 J 28(10): 1403 (amphipacific polychaetes distribution)
- USSR (see Union of Soviet Socialistic Republics)
- Uthe, John Frederick
 J 28(5): 786 (heavy metal contamination of freshwater fish)
 (8): 1203 (obtaining muscle from live fish)
 A 178 (determination of residual mercury in fish tissue)
- V**
- Vaccination
 J 28(9): 1253 (of rainbow trout against *columnaris* disease)
- Valentine, James William
 S 1587 (pleistocene paleoecology and biostratigraphy, Santa Barbara Is., Calif.)
- Vallentyne, John Reuben Way
 J 28(2): 123 (background of FRB Experimental Lakes, NW Ont.)
 A 216 (phosphorus & control of eutrophication)
 233 (ecology & our pollution problem)
- Vanadium derivatives
 S 1529 (distribution in L. Ontario)
- Vancouver Island, B.C. (see also names of localities and bodies of water; also Oceanography, Pacific east coast)
 B 178 (oyster raft culture)
 CNG 91 (steelhead trout age & size in stream-anglers' catches)
 T 232 (razor clam breeding & growth, Long Beach)
- van Overbeeke, Abraham Pieter
 J 28(4): 477 (gonadal hormones effects on sockeye organs)
 (4): 485 (effects of hormones on sockeye)
- Vanstone, William Edward
 J 28(8): 1173 (Pac. salmon glycoprotein constituents)
 (12): 1853 (proteins in salmon eggs)
 S 1521 (egg proteins of Pac. salmon)
 1584 (soluble fractions of Pac. salmon eggs)

- Vegetation (see Flora, aquatic; Flora, terrestrial)
- Vellela* (see Hydroids)
- Velsen, Frank Peter John
J 28(10): 1545 (salinity & temperature re Pac herring)
- Ventilation (see Gills; Oxygen, dissolved; Respiration; Stress)
- Venus mercenaria* (see Quahaug, northern)
- Vermilopsis* (see *Metavermlia*)
- Vertebrae
J 28(4): 465 (counts of N America lake char re postglacial distribution)
(4): 553 (counts of spring vs. autumn spawning SW Nfld. herring)
(7): 987 (counts re systematics & evolution of western N America *Salmo* species & sub-species)
(9): 1235 (count re egg size of medaka)
T 192 (number data for Greenland turbot)
A 192 (number, Atl. & Pac. capelin)
208 (Bay of Fundy herring)
- Vessels, research (see also Surveys)
T 246 (bibliography of operations re N America Pac. coast trawling)
A 220 (C.S.S. *Hudson* circumnavigation of N & S America)
- Vibrio* (see Vibriosis)
- Vibriosis
J 28(4): 517 (first records in Pac. salmon cultured in Canada; morphology & taxonomy of causative bacterium *Vibrio anguillarum*; correction on J 28(8): 1219)
A 203 (*Vibrio parahemolyticus* re fish products toxicity)
- Victoria Harbour, B.C.
A 187 (sewage re pollution)
- Viruses
J 28(6): 875 (Egtved virus antibody development in artificially infected rainbow trout)
(7): 1064 (infectious pancreatic necrosis, in brook trout feces & organs)
(9): 1350 (infectious pancreatic necrosis, in brook trout in 2 Ont. hatcheries)
(11): 1809 (new records of lymphocystic viral infection in gobiid & diodontid fishes, E Pac. coast)
- Viscera (see also organs of)
T 198 (lipids, fatty acids, & tocopherol in queen crab)
208 (bioassays of various Nfld. fishes, re elemental phosphorus assimilation & concentration in)
S 1412 (fluoride content, of several Atl. commercial fishes)
- Vision (see also Darkness; Diel habits; Light, reactions to)
J 28(9): 1352 (moonlight effect on torrent sculpin predation)
(12): 1847 (re experience effect on predation by rainbow trout)
- Vitamins
S 1480 (K & tocopherol, of unicellular red alga *Porphyridium cruentum*)
- Vitellins; Vitins (see also Eggs; Proteins)
J 28(12): 1853 (classification of, in coho salmon eggs)
- Vollenweider, Richard Albert
S 1529 (trace elements & chlorophyll in L. Ontario)
- Volzella modiolus* (see Mussel, red)
- Vose, John Randal
S 1491 (fission of phenylalanine by marine algae)
- Voyer, Richard Alan
J 28(12): 1907 (respiration in flounder)

W

- Wadley, Gerald Weldon
J 28(8): 1181 (X-rays effects on trout embryos)
- Wahoo (*Acanthocybium solanderi*)
J 28(7): 947 (blood pathways effects on blood-pressure drop in gills)
- Waldichuk, Michael
A 187 (coastal sewage pollution)
232 (introduction to report on radioactivity in the marine environment)
- Walker, Charles Edward
J 28(5): 647 (pink salmon in Qualicum R.)
- Waller, William Thomas
J 28(8): 1107 (computer simulation of pollution minnow deaths)
- Walleye (*Stizostedion vitreum vitreum*) (yellow walleye)
J 28(1): 105 (DDT residues in flesh, Saskatchewan R.)

- (5): 783 (slime as bacterial medium re keeping quality)
 (7): 1005 (genetics of skeletal muscle multiple malate dehydrogenase isozymes)
 (8): 1133 (migrations of adult & juveniles between L. Huron & L. Erie)
 (9): 1303 (effects of oxygen depletion & carbon dioxide accumulation on photic behaviour)
 T 261 (bibliography for Gulf of St. Lawrence)
 A 200, 201 (mercury contamination, in various Canadian waters)
- Walrus (*Odobenus rosmarus*)
 MSP 13(F) (actual & potential Canadian Arctic fishery)
 A 231 (actual & potential Canadian Arctic fishery)
- Warbonnet, Atlantic (*Chirolophis ascanii*) (Yarrel's blenny)
 T 261 (bibliography for Gulf of St. Lawrence)
- Ware, Daniel Morris
 J 28(12): 1847 (learning by rainbow trout)
- Warner, Kendall
 J 28(4): 537 (jaw tagging Atl. salmon)
- Washing (of fish) (see Quality of fishery products)
- Washington, Lake, Washington, USA
 J 28(9): 1331 (zoogeographic problem re presence of relict *Pontoporeia affinis* amphipod)
- Washington State, USA (see also Puget Sound; Catches; Groundfish; Trawling; also preceding heading and other localities and bodies of water)
 J 28(9): 1331 (W distribution of peamouth)
 (9): 1335 (age & growth of coastal weathervane scallop)
- Waste disposal (see Pollution)
- Watasenia felix* (*Abraliopsis felix*) (see Squid)
- Waters, natural (see also Hardness; Lakes; Limnology; Pollution; Oceanography; Sea water)
 J 28(1): 73 (chemistry of 2 thermal springs, Mt. Rainier Natl. Park, USA)
 (2): entire issue (of many small lakes in FRB Experimental Lakes Area, NW Ont.)
 (5): 759 (rapid ammonium ion determination method)
 (7): 1049 (sampler for interstitial water in marine mud)
 (7): 1057 (temperature effects of hot discharge water from nuclear power plants)
 T 218 (effects of sea water on bacteria survival)
 262 (temperature effects from hot water discharge from steam-electric power plants)
 S 1485 (importance & general implications of organic matter in aquatic food chain, particularly re filter-feeding copepods)
- Waterton Lakes National Park, Alta.
 J 28(3): 311 (crustacean plankton of a subalpine lake & pond)
- Watson, Jeffrey
 T 204 (adult male snow crabs tag recaptures & movements)
 A 217(F) (biological study of queen crab)
- Waugh, Donald Lloyd
 J 28(4): 527 (ribbed mussel upper lethal temperatures)
- Wavre, Mina
 J 28(3): 335 (tubificid oligochaetes & bacteria)
- Waxes
 S 1514 (wax esters of Amazon R. dolphin jaw fat, re echolocation ability)
 1564 (*trans*-6-hexadecenol & corresponding acid in sea anemone)
- Weather (see Climate)
- WeatherShip Station P (see Oceanography, North Pacific Ocean)
- Webb, N.A.
 T 210 (*G. B. Reed* groundfish cruise 70-2)
- Wedemeyer, Gary
 J 28(4): 606 (blood chemistry values for juvenile coho salmon)
 (12): 1899 (stress of formalin treatment in fish)
- Weight (see also Growth; Length; Size)
 J 28(4): 513 (of Skeena R. sockeye salmon eggs re length & age of parents)
 (6): 861 (feeding level effects on young sockeye salmon)
 (7): 1061 (reduction on drying white sucker steaks)
 (12): 1907 (re factors affecting winter flounder respiration rates)
 T 160 (of 4 *Lepidion* morid fish species)
 237 (re length of Pac. ocean perch off B.C. in 1969)
 250 (computer programming fish data)
 260 (at mean length, of Scotian Shelf groundfish species)
 S 1575 (of Cetacea & their hearts, re their feeding rates)
 A 197, 212 (& size of fish re metabolic energy requirements; reviews)
- Weiner, Catherine
 S 1519 (protein, amino acids, and ammonia determination in marine sediments)
- Weir, J. R.
 A 230 (food from a northern environment)
- Weisbart, Melvin
 S 1576 (hormonal steroids in sturgeon plasma)

- Welander, Arthur Donovan
J 28(8): 1181 (X-ray effects on trout embryos)
- Wellings, Sefton Robert
J 28(9): 1241 (flounder skin tumors)
- Wells, Richard
S 1507 (haddock length conversion factors)
1540 (catch/effort assessment of major cod stocks)
A 191 (American plaice eggs and larvae)
- Werner, Arthur Eugene
S 1500 (gases from sediments in polluted coastal waters)
- Westrheim, Sigurd Jergen
J 28(10): 1621 (taxonomy, distribution, and biology of northern rockfish)
T 210 (*G. B. Reed* groundfish cruise 70-2)
237 (weight-length relationship for Pac. ocean perch)
251 (length-girth relationship for Pac. ocean perch)
269 (*G. B. Reed* groundfish cruise 71-1)
- Whale, bowhead (*Balaena mysticetus*) (Greenland right whale)
J 28(12): 1873 (Canadian recovery after previous exploitation)
A 231 (Canadian Arctic native fishery)
- Whale, false killer (*Pseudorca crassidens*)
S 1575 (body & heart weight, re feeding rate)
- Whale, fin (*Balaenoptera physalus*)
S 1574 (oral remnants of nasopalatine canals)
- Whale, Greenland right (see Whale, bowhead)
- Whale, killer (*Orcinus orca*)
S 1575 (body & heart weight, re feeding rate)
- Whale, minke (*Balaenoptera acutorostrata*)
A 194 (Nfld. fishery)
- Whale, Pacific pilot (*Globicephala scammoni*)
S 1575 (body & heart weight, re feeding rate)
- Whale, pilot (*Globicephala melaena*) (blackfish; pothead whale)
A 194 (Nfld. fishery)
- Whale, southern Atlantic pilot (*Globicephala macrorhyncha*)
S 1575 (body & heart weight, re feeding rate)
- Whale, white (*Delphinapterus leucas*) (beluga)
J 28(9): 1309 (growth, reproduction, & behaviour, Cumberland Sound, Baffin Is., N.W.T.)
- MSP 13(F) (actual & potential Canadian Arctic fishery)
S 1575 (body & heart weight, re feeding rate)
A 200 (mercury contamination, Hudson Bay)
231 (actual & potential Canadian Arctic fishery)
- Whales (see also above species)
S 1575 (body lengths, & heart weight re body weight, of various species)
A 194 (Nfld. minor fishery species)
229 (aging by teeth & bone layered structure: book review)
- Whelk, rough (*Buccinum undatum*)
B 177 (re paralytic shellfish poisoning, E Canada)
- Whelk, Stimpson's (see Spindle shell)
- Whelk, ten-banded (*Neptunea decemcostata*) (ten-ridged neptune)
B 177 (re paralytic shellfish poisoning, E Canada)
- Whelping (see Reproduction)
- White, Edwin Graeme
J 28(3): 443 (computer analyses of capture-recapture data using Jolly's model)
- Whitefish, lake (*Coregonus clupeaformis*)
J 28(5): 643 (killing *Salmonella* bacteria by ⁶⁰Co irradiation during smoking)
(5): 783 (beneficial effect of washing off slime re keeping quality)
(5): 786 (heavy-metal concentrations in dressed, from Moose L., Man., & L. Ontario)
T 261 (bibliography for Gulf of St. Lawrence)
A 200, 201 (mercury contamination in various Canadian waters)
224 (parasites)
- Whitefish, mountain (*Prosopium williamsoni*)
J 28(1): 110 (stomach evacuation rate when fed sockeye salmon alevins)
T 245 : 1 (unknown cause of severe mortality, Kootenay L., B.C.)
A 224 (parasites)
- Whiting (Pacific) (see Pollock, Pacific)
- Whyte, John Nimmo Crosby
S 1530 (polysaccharides of red alga)
1548 (polysaccharides of red seaweed)
- Wickett, William Percy
T 230 (Pac. Ocean transport charts, 1969)
238 (N Pac. Ocean transport computations, 1970)
239 (N Pac. Ocean transport computations, 1969)
240 (N Pac. Ocean transport charts, 1970)

- Wilder, Donald George
A 213, 213(F) (artificial rearing of lobsters)
- Wildish, David John
J 28(9): 1285 (methylmercury in fish)
S 1558 (lethal effects of PCB in sea water on *Gammarus oceanicus*)
1570 (uptake of polychlorinated biphenyls from sea water by *Gammarus oceanicus*)
- Willis, James Newman, III
J 28(11): 1783 (distribution of radioactive zinc in marine ecosystem)
- Wilson, Robert McNair
J 28(10): 1681 (whitebait smelt recorded in B.C. waters)
- Wind
J 28(2): 163 (effect on thermoclines in several small NW Ont. lakes)
- Windowpane (*Scophthalmus aquosus*)
T 225 (associated with Bay of Fundy scallop beds)
261 (bibliography for Gulf of St. Lawrence)
- Winnipeg, Lake, Man.
A 200 (mercury contamination of fishes by species & locality)
- Winters, George Henry
J 28(7): 1029 (fecundity of capelin)
CJG 18: 20 (herring tagging in SW Nfld. waters)
A 185 (Nfld. capelin)
193 (capelin (*Mallotus villosus*))
- Wiseman, Phyllis Maxwell
J 28(10): 1675 (sterols of a brachiopod)
S 1457 (desmosterol content of dulce red algae sterols)
1459 (new marine sterol)
1506 (identification of scallop sterols)
1527 (sterols of Crustacea)
- Withler, Frederick Curtis
CNG 91 (Vancouver Is. steelhead trout age & size)
- Wold, Finn
J 28(6): 879 (enolase from lobster)
- Wolf-eel (Atlantic) (*Lycenchelys paxillus*)
T 261 (bibliography for Gulf of St. Lawrence)
- Wolf-eel (Pacific) (*Anarrhichthys ocellatus*)
T 257 (taken in 1970 B.C. trawl fishery)
- Wolffish, Atlantic (*Anarhichas lupus*)
J 28(1): 1 (amine production in stored/frozen muscle)
(9): 1285 (methylmercury in, N.S. banks)
T 225 (associated with Bay of Fundy scallop beds)
260 (standing crop, availability, lengths, weights, etc. from Scotian Shelf surveys, 1958-68)
261 (bibliography for Gulf of St. Lawrence)
- Wolffish, spotted (*Anarhichas minor*)
T 261 (bibliography for Gulf of St. Lawrence)
- Woods, C. S.
T 151 (bibliography of coregonid fishes)
- Woods, Robert John
J 28(5): 625 (handling & anesthetization effects on brook trout)
(5): 635 (brook trout variations re surgery)
- Worms (see Acanthocephala; Annelids; Cestoda; Chaetognatha; Flukes; Leeches; Nematoda; Oligochaeta; Polychaeta; Sandworm; Turbellaria)
- Wowchuk, Robert Michael
T 211 (*G. B. Reed* groundfish cruise 70-3)
- Wrymouth (*Cryptacanthodes maculatus*)
J 28(7): 935 (occasional component of Passamaquoddy Bay fish communities, N.B.)
T 261 (bibliography for Gulf of St. Lawrence)
- Wrymouth, giant (*Delolepis gigantea*)
T 257 (taken during 1970 B.C. trawl fishery)
- X
- X-rays
J 28(3): 369 (fluorescence X-ray spectrometry of salmonids for elemental composition as indicator of geographical origin)
(8): 1181 (rainbow trout growth & fecundity after eyed-embryo exposure to)
(10): 1583 (radioisotope X-ray fluorescence spectrometry in aquatic biology: review)
T 200 (multiple discrimination analysis of data from J 28(3) reference above)
212 (computer programming of data such as from T 200 reference above)
- Xeneretmus triacanthus* (see Poacher, bluespotted)
- Xenon
A 232 (¹³³Xe as radioactive marine pollutant)
- Xiphias gladius* (see Swordfish)
- Xystreus liolepis* (see Sole, fantail)
- Y
- Yamamoto, Masanobu
S 1508 (acid deoxyribonuclease from salmon testes)
1525 (fish liver enzymes)
A 226 (nucleoside cyclic phosphate diesterases)
227 (nucleotide phosphomonoesterases)
- Yates, Arthur Nelson
A 128(F) (B. C. prawn trap fishing)

- Yield (see also Angling; Catches; Fisheries; Management)
 T 165(F) (in rainbow trout farming, eastern Canada)
 260 (maximum sustainable, Scotian Shelf ground-fishes)
 A 184 (sustained, of Canadian Arctic harp & ringed seals)
- Yoho National Park, B.C.
 J 28(3): 311 (crustacean plankton of 20 alpine & subalpine lakes and ponds)
- Yu, Man-Lim
 J 28(1): 47 (erythropoiesis in *Trichogaster trichopterus*)
- Yusa, Tatsuo
 T 236 (eggs & larvae of *Limanda yokohamae*)
- Yvesia (see Sponges)
- Z**
- Zalemibus rosaceus* (see Seaperch, pink)
- Zaprora silenus* (see Prowfish)
- Zibrowius, Helmut W.
 J 28(10): 1373 (revision of *Metavermilia*)
- Zinc derivatives
 J 28(2): 277 (in sediments of 4 small NW Ont. lakes)
 (5): 786 (in dressed Canadian fishes from industrial area lakes)
 (6): 843 (biological activity of, as occurring in P.E.I. oysters fed to rats)
 (8): 1107 (mathematical model of effects on mortality in fathead minnow populations)
 (11): 1783 (distribution of ⁶⁵Zn vs. Zn in experimental marine ecosystem)
 T 202 (diatoms as indicators of, & effects of, in NW Miramichi R. basin, N.B.)
 S 1529 (distribution in L. Ontario)
 1553 (re mining effluent effects on NW Miramichi R. vascular plants)
 A 222 (avoidance reaction sensitivity to sub-lethal levels by Atl. salmon & brook trout)
 232 (⁶⁵Zn as radioactive marine pollutant)
- Zitko, Vladimir
 J 28(9): 1285 (methylmercury in fish)
 T 217 (characterization of petroleum oils)
- 272 (PCB & other industrial halogenated hydrocarbons in the environment)
 S 1463 (identification of polychlorinated biphenyls & DDT)
 1569 (fuel oil contamination of aquatic animals)
 1570 (uptake of polychlorinated biphenyls from sea water by *Gammarus oceanicus*)
 1584 (fish kill from coke-oven oil)
- Zonation (see Distribution)
- Zoobenthos (see Benthos)
- Zoogeography (see also Distribution (biological); Glaciation)
 J 28(7): 987 (re systematics & evolution of western N America *Salmo*)
 (9): 1331 (re glacial relict *Pontoporeia affinis* amphipod in L. Washington, USA)
 (10): 1403 (re amphipacific distribution of polychaete species)
 S 1532, 1533 (re invertebrates in high mountain North Boulder Creek, Colorado)
- Zooplankton (see also Feed; Plankton; Production, secondary; also classifications of)
 J 28(2): 231, 245, 257 (studies in many small NW Ont. lakes)
 (4): 559 (seasonal caloric content of freshwater, from 3 small E Ont. lakes)
 (9): 1327 (tolerance of copepods to fuel oil & fecal sedimentation of oil from marine oil spills)
 (10): 1635 (role in young sockeye salmon diets)
 B 176 (synopsis of Canadian Arctic, Pacific, & Atlantic marine; includes an index)
 T 248 (herbivores nocturnal vs. continuous grazing re productivity studies)
 252 (macrozooplankton ecology & biomass, Scotian Shelf)
 266 (data, Frobisher Bay, Baffin Is., N.W.T. 1967-70)
 S 1482 (comparison of biomass in eutrophicated Bedford Basin, N.S., with that in St. Margaret's Bay, N.S.)
 1485 (role of aquatic organic matter as feed for)
 1513 (rations, re marine productivity estimation)
 1586 (grazing on phytoplankton, re 25-hour chlorophyll budget study)
 A 211 (re feed availability to different trophic levels in marine feed chain)
- Zostera marina* (see Eelgrass)

LIST OF PUBLICATIONS

**JOURNAL OF THE
FISHERIES RESEARCH BOARD OF CANADA****Abbreviation : J**

(A complete list of the contents for the 1971 Volume 28 is included at the back of this issue for binding purposes.)

**BULLETINS OF THE
FISHERIES RESEARCH BOARD OF CANADA****Abbreviation : B**

175. MORSE, N. H. An economic study of the oyster fishery of the Maritime Provinces. viii + 81 p.
176. SHIH, C.-T., A. J. G. FIGUEIRA, AND E. H. GRAINGER. A synopsis of Canadian marine zooplankton. viii + 264 p.
177. PRAKASH, A., J. C. MEDCOF, AND A. D. TENNANT. Paralytic shellfish poisoning in eastern Canada. viii + 88 p.
178. QUAYLE, D. B. Pacific oyster raft culture in British Columbia. vi + 34 p.

**CIRCULARS OF THE
FISHERIES RESEARCH BOARD OF CANADA**

Halifax Laboratory, Halifax, N.S.

Abbreviation : CHN

39. DAMBERGS, N., AND L. W. REGIER. Method for extraction and colorimetric determination of isopropanol in fish protein concentrates. 5 p. [1970]
40. STEWART, J. E., AND J. W. CORNICK. Red crab, *Geryon quinquedens*: 1) recommended live storage temperatures; 2) resistance to gaffkemia, the lobster disease. 2 p. [1970]
41. STEWART, J. E., AND J. W. CORNICK. Disease among stored lobsters (gaffkemia). 5 p. [1970]
42. CORNICK, J. W., AND J. E. STEWART. Disinfection procedures for the control of blood disease (gaffkemia) in lobster storage facilities. 3 p. [1970]

Biological Station, Nanaimo, B.C.

Abbreviation : CNG

90. GODFREY, H. Production of chinook and coho salmon by United States hatcheries. 31 p.
91. NARVER, D. W., AND F. C. WITTLER. Age and size of steelhead trout (*Salmo gairdneri*) in anglers' catches from Vancouver Island, British Columbia, streams. 26 p.

Biological Station, St. John's, Nfld.

Abbreviation : CJG

18. HODDER, V. M. Recent developments in the Newfoundland herring fishery. p. 1-19.

WINTERS, G. H. Preliminary results of herring tagging in southwest Newfoundland coastal waters. p. 20-24.

PARSONS, L. S. Herring investigations in north-east Newfoundland and Labrador. p. 25-28. [1970]

ANNUAL REPORT**Abbreviation : AR**

Annual Report Fisheries Research Board of Canada 1970. 52 p. (combined English and French).

REVIEW**Abbreviation : R**

Review of the Fisheries Research Board of Canada 1969-1970. 217 p.

MISCELLANEOUS SPECIAL PUBLICATIONS**Abbreviation : MSP**

13. KERSWILL, C. J., AND J. G. HUNTER. Etudes dans l'Arctique canadien. 16 p.

**TECHNICAL REPORTS OF THE FISHERIES
RESEARCH BOARD OF CANADA****Abbreviation : T**

151. MARSHALL, K. E., AND C. S. WOODS. A bibliography of the coregonid fishes. 63 p. (Freshwater Institute, Winnipeg)
160. TEMPLEMAN, W. Additional tabular details of distributional, meristic and morphometric data for the paper: A review of the morid fish genus *Lepidion* of the North Atlantic with first records of *Lepidion eques*, from the western North Atlantic (Templeman, 1970). Also, weights, foods and parasites of *Lepidion*. 30 p. (St. John's Biological Station) [1970]
165. JOHNSON, L., G. H. LAWLER, AND L. A. SUNDE. L'élevage de la truite arc-en-ciel dans les prairies du Canada. 15 p. (Freshwater Institute, Winnipeg)
176. MARSHALL, K. E., AND J. J. KELEHER. A bibliography of the lake trout, *Cristovomer namaycush* (Walbaum) 1929-1969. 60 p. (Freshwater Institute, Winnipeg) [1970]
179. LEAR, W. H. Catch statistics, length and age composition of Greenland halibut in the Newfoundland area. 27 p. (St. John's Biological Station) [1970]
192. TEMPLEMAN, W. Additional tabular data related to the paper: Vertebral and other meristic characteristics of Greenland halibut, *Reinhardtius hippoglossoides*, from the northwest Atlantic (Templeman, 1970). 16 p. (St. John's Biological Station) [1970]

199. MERCER, M. C. A. T. *Cameron* cruise 157, otter-trawl survey of the southwestern North Atlantic, February 1969. 66 p. (St. John's Biological Station) [1970]
200. CALAPRICE, J. R. A preliminary report on X-ray spectrometric analysis and discrimination of salmonids from different geographic areas. 35 p. (Nanaimo Biological Station) [1970]
202. BESCH, W. K., M. RICARD, AND R. CANTIN. Utilisation des diatomées benthiques comme indicateurs de pollution minière dans le bassin de la Miramichi N.W. 72 p. (St. Andrews Biological Station) [1970]
204. WATSON, J. Tag recaptures and movements of adult male snow crabs, *Chionoecetes opilio* (O. Fabricius), in the Gaspé region of the Gulf of St. Lawrence. 11 p., 5 fig. (St. Andrews Biological Station) [1970]
209. LEE, P. J., J. A. HANSEN, AND K. E. MARSHALL. Storage and retrieval of indexed and annotated bibliographic references. 43 p. (Freshwater Institute, Winnipeg)
210. WESTRHEIM, S. J., C. W. HAEGELE, U. B. G. KRISTIANSEN, AND N. A. WEBB. *G. B. Reed* groundfish cruise No. 70-2, August 7-20, 1970. 15 p. (Nanaimo Biological Station) [1970]
211. MINKLEY, B. G., K. A. GANTZER, AND D. A. HEALEY. Oceanographic observations at Ocean Station P (50°N, 145°W), September 19 to November 6, 1969 and December 5, 1969 to January 15, 1970. 97 p. (Nanaimo Biological Station) [1970]
212. THOMSON, J. A., AND J. R. CALAPRICE. IBM 1130 programs for multiple discrimination analysis of X-ray spectroscopy data (Fortran). 41 p. (Nanaimo Biological Station) [1970]
213. TAYLOR, F. H. C., L. W. BARNER, AND D. C. MILLER. The British Columbia offshore herring survey, 1969-70. Report on cruises SK 70-4, -5, -6, and -7. 75 p. (Nanaimo Biological Station) [1970]
215. BELL, W. H., AND M. C. ARMSTRONG. A photo-electric fish counter. 23 p. (Nanaimo Biological Station) [1970]
216. FORRESTER, C. R., AND J. E. SMITH. A summary report of the British Columbia trawl fishery in 1969 and some aspects of its investigation. 37 p. (Nanaimo Biological Station) [1970]
217. ZITKO, V., AND W. V. CARSON. The characterization of petroleum oils and their determination in the aquatic environment. 29 p. (St. Andrews Biological Station) [1970]
218. BERNARD, F. R. Factors influencing the viability and behaviour of the enteric bacterium *Escherichia coli* in estuarine waters. 30 p. (Nanaimo Biological Station) [1970]
219. SHARAF EL DIN, S. H., E. M. HASSAN, AND R. W. TRITES. The physical oceanography of St. Margaret's Bay. 242 p. (Marine Ecology Laboratory, Dartmouth) [1970]
220. TOMLINSON, N., D. E. KRAMER, S. E. GEIGER, S. W. ROACH, AND J. H. MANN. Storage of Pacific salmon at sea. 3. The quality of sockeye salmon (*Oncorhynchus nerka*) canned after storage in ice and in refrigerated sea water. 9 p. (Vancouver Laboratory) [1970]
221. HARLING, W. R., D. DAVENPORT, M. S. SMITH, AND R. M. WOWCHUK. *G. B. Reed* groundfish cruise No. 70-3, September 9 to 25, 1970. 35 p. (Nanaimo Biological Station) [1970]
222. CALAPRICE, J. R. Genetics and mariculture. 10 p. (Nanaimo Biological Station) [1970]
223. BILTON, H. T. Data and computations used in racial analyses of age -1.2 and -1.3 North American sockeye on the basis of their scale characters. 57 p. (Nanaimo Biological Station) [1970]
224. SMITH, T. G. Computer programs for analysis of ringed seal population data. 45 p. (Arctic Biological Station, Ste. Anne de Bellevue)
225. CADDY, J. F. Records of associated fauna in scallop dredge hauls from the Bay of Fundy. 11 p., 3 tables, 10 fig. (St. Andrews Biological Station) [1970]
226. PIPPY, J. H. C. Fish mortalities in the Northwest Miramichi River in 1969. 7 p. (St. John's Biological Station) [1970]
229. BROCKERHOFF, H., AND P. H. ODENSE. Effects of adaptive and nonadaptive feeding of hydrogenated and raw herring oil on hearts and livers of rats. 11 p. (Halifax Laboratory) [1970]
230. WICKETT, W. P., AND J. A. C. THOMSON. Ekman transport charts for the North Pacific Ocean, 1969. 27 p. (Nanaimo Biological Station) [1970]
231. HUNTER, J. G. Production of Arctic char (*Salvelinus alpinus* Linnaeus) in a small arctic lake. 190 p. (Arctic Biological Station, Ste. Anne de Bellevue) [1970]
232. BOURNE, N., AND D. B. QUAYLE. Breeding and growth of razor clams in British Columbia. 42 p. (Nanaimo Biological Station) [1970]
233. ACKMAN, R. G., R. F. ADDISON, P. J. KE, AND J. C. SIPOS. Examination of bottom deposits, Long Harbour, Newfoundland, for elemental phosphorus and for fluorides. 6 p., 13 fig. (Halifax Laboratory)
234. BILTON, H. T. Data and computations used in racial analyses of even- and odd-year North American pink salmon on the basis of their scale characters. 10 p. (Nanaimo Biological Station)
235. SCRIVENER, J. C. E. Agonistic behaviour of the American lobster *Homarus americanus* (Milne-Edwards). 128 p. (Nanaimo Biological Station)
236. YUSA, T., C. R. FORRESTER, AND C. IIOKA. Eggs and larvae of *Limanda yokohamae* (Günther). 21 p. (Nanaimo Biological Station)
237. WESTRHEIM, S. J., AND J. A. THOMSON. Weight-length relationship for Pacific ocean perch (*Sebastes alutus*) collected off British Columbia in 1969. 12 p. (Nanaimo Biological Station)

238. WICKETT, W. P., AND J. A. THOMSON. Transport computations for the North Pacific Ocean, 1970. 104 p. (Nanaimo Biological Station)
239. WICKETT, W. P., AND J. A. THOMSON. Transport computations for the North Pacific Ocean, 1969. 104 p. (Nanaimo Biological Station)
240. WICKETT, W. P., AND J. A. C. THOMSON. Ekman transport charts for the North Pacific Ocean, 1970. 27 p. (Nanaimo Biological Station)
241. SCRIVENER, J. C., AND T. H. BUTLER. A bibliography of shrimps of the family Pandalidae, emphasizing economically important species of the genus *Pandalus*. 42 p. (Nanaimo Biological Station)
242. TOMLINSON, N., S. E. GEIGER, S. W. ROACH, AND J. H. MANN. Storage of Pacific salmon at sea. 4. Partial freezing. The harmful effect of slow cooling and of physical maltreatment of the fish. 10 p. (Vancouver Laboratory)
243. KENNEDY, W. A., AND M. S. SMITH. Sablefish culture — progress in 1970. 18 p. (Nanaimo Biological Station)
244. LEE, P. J. Multivariate analysis for the fisheries biology. 182 p. (Freshwater Institute, Winnipeg)
245. BELL, G. R., AND G. E. HOSKINS. Investigations of wild fish mortalities in B.C., 1969–1970. 17 p., Appendix. (Nanaimo Biological Station)
246. DAY, D., AND C. R. FORRESTER. A preliminary bibliography on the trawl fishery and groundfish of the Pacific coast of North America. 91 p. (Nanaimo Biological Station)
247. PLATT, T., AND B. IRWIN. Phytoplankton production and nutrients in Bedford Basin, 1969–70. 172 p. (Marine Ecology Laboratory, Dartmouth)
248. MCALLISTER, C. D. Some aspects of nocturnal and continuous grazing by planktonic herbivores in relation to production studies. 281 p. (Nanaimo Biological Station)
249. ACKMAN, R. G., S. N. HOOPER, AND G. DUBÉ. Development of methodology for the identification of marine oils in hydrogenated edible oil products. 31 p. (Halifax Laboratory)
250. LEE, P. J. The principle and operation of fish catch and pollution. (Freshwater Institute, Winnipeg)
251. WESTRHEIM, S. J., AND F. W. NASH. Length-girth relationship for Pacific ocean perch (*Sebastes alutus*) collected off British Columbia in 1969. 6 p. (Nanaimo Biological Station)
252. SAMEOTO, D. D. The distribution of herring (*Clupea harengus* L.) larvae along the southern coast of Nova Scotia with some observations on the ecology of herring larvae and the biomass of macrozooplankton on the Scotian Shelf. 72 p. (Marine Ecology Laboratory, Dartmouth)
253. TABATA, S., J. A. STICKLAND, AND B. R. DE LANGE BOOM. The program of current velocity and water temperature observations from moored instruments in the Strait of Georgia — 1968–1970 and examples of records obtained. 222 p. (Nanaimo Biological Station)
254. ADDISON, R. F., R. G. ACKMAN, L. J. COWLEY, D. MASCALUK, AND S. POND. Elemental phosphorus levels in water samples from Long Harbour, Nfld. (July, 1969–June, 1970). 29 p. (Halifax Laboratory)
255. FLETCHER, G. L., R. J. HOYLE, AND D. A. HORNE. The relative toxicities of yellow phosphorus production wastes to seawater-maintained fish. 14 p., 4 fig. (Halifax Laboratory)
256. CADDY, J. E., AND A. SREEDHARAN. The effect of recent recruitment to the Georges Bank scallop fishery on meat sizes landed by the offshore fleet in the summer of 1970. 11 p., 3 tables 3 app., 9 fig. (St. Andrews Biological Station)
257. SMITH, J. E. Catch and effort statistics of the British Columbia trawl fishery in 1970. 97 p. (Nanaimo Biological Station)
258. FLANNAGAN, J. F. Toxicity evaluation of trisodium nitrilotriacetate to selected aquatic invertebrates and amphibians. 15 p., 6 fig. (Freshwater Institute, Winnipeg)
259. CHILTON, D. E., AND J. E. SMITH. Length and age composition of rock sole, *Lepidopsetta bilineata*, in western Canadian waters. 2. Commercial landings from the Cape Scott Bank, Queen Charlotte Sound, 1959–69. 25 p. (Nanaimo Biological Station)
260. SCOTT, J. S. Abundance of groundfishes on the Scotian Shelf. 8 p., 2 fig., 8 tables. (St. Andrews Biological Station)
261. SRIVASTAVA, V. M. Fish of the Gulf of St. Lawrence an unabridged bibliography. 141 p. (Marine Ecology Laboratory, Dartmouth)
264. CARROTHERS, P. J. G. Fluid mechanics of netting and low solidity screens. 1. Apparatus, experimental method, and basic data. 41 p., 45 fig., 11 tables. (St. Andrews Biological Station)
265. GRAINGER, E. H. Biological oceanographic observations in Frobisher Bay. I. Physical, nutrient and primary production data, 1967–1971. 75 p. (Arctic Biological Station, Ste. Anne de Bellevue)
266. GRAINGER, E. H. Biological oceanographic observations in Frobisher Bay. II. Zooplankton data, 1967–1970. 61 p. (Arctic Biological Station, Ste. Anne de Bellevue)
267. BURSA, A. S. Biological oceanographic observations in Frobisher Bay. III. Phytoplankton tables, 1967. 21 p. (Arctic Biological Station, Ste. Anne de Bellevue)
268. BERNARD, F. R. British Columbia marine faunistic survey report on the Brachiopoda. 10 p. (Nanaimo Biological Station)
269. DAVENPORT, D., M. S. SMITH, U. B. G. KRISTIANSEN, J. E. PETERS, AND S. J. WESTRHEIM. G. B. Reed groundfish cruise No. 71-1 June 9 to 29, 1971. 27 p. (Nanaimo Biological Station)

270. MAY, A. W., AND W. H. LEAR. Digest of Canadian Atlantic salmon catch statistics. 106 p. (St. John's Biological Station)
271. KEYTE, F. K., AND R. W. TRITES. Circulation patterns in the Gulf of St. Lawrence: June 1968 and September 1969. 108 p. (Marine Ecology Laboratory, Dartmouth)
272. ZITKO, V., AND P. M. K. CHOI. PCB and other industrial halogenated hydrocarbons in the environment. 55 p., 9 fig. (St. Andrews Biological Station)

STUDIES OF THE FISHERIES RESEARCH BOARD OF CANADA

Abbreviation : S

1457. IDLER, D. R., AND P. WISEMAN. 1970. Sterols in red algae (Rhodophyceae): variation in the desmosterol content of dulse (*Rhodymenia palmata*). Comp. Biochem. Physiol. 35: 679-687.
1458. INGRAM, P. 1970. α -1, 4-Glucan: α -1, 4-glucan 6-glycosyl transferase from trout liver. Int. J. Biochem. 1: 451-456.
1459. IDLER, D. R., P. M. WISEMAN, AND L. M. SAFE. 1970. A new marine sterol, 22-trans-24-norcholesta-5,22-dien-3 β -ol. Steroids 16: 451-461.
1460. LAYCOCK, R. A., AND L. W. REGIER. 1970. Pseudomonads and achromobacters in the spoilage of irradiated haddock of different preirradiation quality. Appl. Microbiol. 20: 333-341.
1461. SCOTT, K. R. 1970. Thermistor readout monitors cold storage. Can. Contr. Instrum. 9: 36-38.
1462. BROCKERHOFF, H. 1970. Substrate specificity of pancreatic lipase. Influence of the structure of fatty acids on the reactivity of esters. Biochim. Biophys. Acta 212: 92-101.
1463. HUTZINGER, O., W. D. JAMIESON, AND V. ZITKO. 1970. Identification of polychlorinated biphenyls and DDT in mixtures by mass spectrometry. Nature 226: 664.
1464. MESSIEH, S. N., AND S. N. TIBBO. 1970. A critique on the use of otoliths for ageing Gulf of St. Lawrence herring (*Clupea harengus* L.). J. Cons. Cons. Int. Perm. Explor. Mer 33: 181-191.
1465. MASON, J. C. 1970. Copulatory behavior of the crayfish, *Pacifastacus trowbridgii* (Stimpson). Can. J. Zool. 48: 969-976.
1466. PARSONS, T. R., AND G. C. ANDERSON. 1970. Large scale studies of primary production in the North Pacific Ocean. Deep-Sea Res. 17: 765-776.
1467. STEPHENS, K. 1970. Automated measurement of dissolved nutrients. Deep-Sea Res. 17: 393-396.
1468. MASON, J. C. 1970. Egg-laying in the western North American crayfish, *Pacifastacus trowbridgii* (Stimpson) (Decapoda, Astacidae). Crustaceana 19(44): 37-42.
1469. BERNARD, F. R. 1970. Occurrence of the spirochaete genus *Cristispira* in western Canadian marine bivalves. Veliger 13: 33-36.
1470. BERNARD, F. R. 1970. A distributional checklist of the marine molluscs of British Columbia: based on faunistic surveys since 1950. Syesis 3: 75-94.
1471. BROCKERHOFF, H., R. J. HOYLE, AND P. C. HWANG. 1970. An assay of lipase based on the liberation of acetaldehyde from vinyl oleate. Anal. Biochem. 37: 26-31.
1472. CUNNINGHAM, C. C., AND I. W. DUEDALL. 1970. Phenosafranin indicator for chlorinity titrations. J. Cons. Cons. Perm. Int. Explor. Mer 33: 292-293.
1473. SCOTT, K. R. 1970. Portable refrigerated fish holding unit for remote freshwater fisheries. Can. Inst. Food Technol. J. 3: 139-142.
1474. ADDISON, R. F., AND R. G. ACKMAN. 1970. Exceptional occurrence of odd-chain fatty acids in smelt (*Osmerus mordax*) from Jeddore Harbour, Nova Scotia. Lipids 5: 554-557.
1475. ACKMAN, R. G. 1970. Confusion between C₁₈ and C₂₀ fatty acids in a gas chromatographic analysis of seed lipids of water plants. Lipids 5: 950-951.
1476. DICKIE, L. M. 1970. Marine science and technology. Chem. Can. 22(November): 25-27.
1477. O'HALLORAN, M. J., AND D. R. IDLER. 1970. Identification and distribution of the Leydig cell homolog in the testis of sexually mature Atlantic salmon (*Salmo salar*). Gen. Comp. Endocrinol. 15: 361-364.
1478. IDLER, D. R., AND M. J. O'HALLORAN. 1970. Steroids of a chondrosteian: identification of interrenal tissue in the American Atlantic sturgeon, *Acipenser oxyrinchus* Mitchill, by histological and histochemical methods. J. Endocrinol. 48: 621-626.
1479. IDLER, D. R., AND G. B. SANGALANG. 1970. Steroids of a chondrosteian: in-vitro steroidogenesis in yellow bodies isolated from kidneys and along the posterior cardinal veins of the American Atlantic sturgeon, *Acipenser oxyrinchus* Mitchill. J. Endocrinol. 48: 627-637.
1480. ANTIA, N. J., I. D. DESAI, AND M. J. ROMILLY. 1970. The tocopherol, vitamin K, and related isoprenoid quinone composition of a unicellular red alga (*Porphyridium cruentum*). J. Phycol. 6: 305-312.
1481. ACKMAN, R. G., AND S. N. HOOPER. 1970. Hydrogenolysis products of the minor fatty acids from *Euphorbia longana* seed oil. J. Amer. Oil Chemists' Soc. 47: 525-529.
1482. PLATT, T., R. J. CONOVER, R. LOUCKS, K. H. MANN, D. L. PEER, A. PRAKASH, AND D. D. SAMEOTO. 1970. Study of a eutrophicated

- marine basin. FAO technical conference on marine pollution and its effects on living resources and fishing. December 9-18, 1970, Rome, Italy.
1483. SCOTT, J. S. 1969. Morphology and morphometric variation in *Lecithophyllum botryophorum* (Trematoda: Hemiuridae) in *Argentina silus*. Can. J. Zool. 47: 213-216.
 1484. APPLGATE, V. C., B. G. H. JOHNSON, AND M. A. SMITH. 1966. The relation between molecular structure and biological activity among mononitrophenols containing halogens. Great Lakes Fish. Comm. Tech. Rep. 11: 1-19.
 1485. PARSONS, T. R., AND H. SEKI. 1970. Importance and general implications of organic matter in aquatic environments. In D. W. Hood [ed.] Symposium on organic matter in natural waters. Inst. Mar. Sci. Occas. Publ. 1(June): 1-27.
 1486. MASON, J. C. 1970. Maternal-offspring behavior of the crayfish, *Pacifastacus trowbridgi* (Stimpson). Amer. Midland Natur. 84: 463-473.
 1487. MARGOLIS, L. 1970. Nematode diseases of marine fishes, p. 190-209. In S. F. Snieszko [ed.] A symposium on diseases of fishes and shellfishes. Amer. Fish. Soc. Spec. Publ. 5.
 1488. BURSA, A. S. 1969. *Actiniscus canadensis* n.sp., *A. pentasterias* Ehrenberg v. *arcticus* n.var., *Pseudoactiniscus apentasterias* n.gen., n.sp., marine relicts in Canadian Arctic lakes. J. Protozool. 16: 411-418.
 1489. FREEMAN, H. C., AND D. R. IDLER. 1971. Binding affinities of blood proteins for sex hormones and corticosteroids in fish. Steroids 17: 233-250.
 1490. LAWRIE, A. H. 1970. The sea lamprey in the Great Lakes. Trans. Amer. Fish. Soc. 99: 766-775.
 1491. VOSE, J. R., J. Y. CHENG, N. J. ANTIA, AND G. H. N. TOWERS. 1971. The catabolic fission of the aromatic ring of phenylalanine by marine planktonic algae. Can. J. Bot. 49: 259-261.
 1492. HALLIDAY, R. G., AND F. D. McCracken. 1970. Movements of haddock tagged off Digby, Nova Scotia. ICNAF Res. Bull. 7: 8-14.
 1493. PINHORN, A. T. 1970. Assessments of the effects of increases in the mesh sizes of trawls on the cod fisheries in the southern Grand Bank area (ICNAF Divisions 3N and 3O). ICNAF Res. Bull. 7: 32-45.
 1494. KNIGHT, W. 1970. Some remarks on the behaviour of growth and mortality estimates based on age-length keys. ICNAF Res. Bull. 7: 52-55.
 1495. MESSIEH, S. N. 1970. Immature herring populations in the Bay of Fundy. ICNAF Res. Bull. 7: 59-66.
 1496. KABATA, Z. 1967. *Proclavellodes pillaii* gen. et sp.n. (Copepoda: Lernaepodidae) from South India. J. Parasitol. 53: 1298-1301.
 1497. EVELYN, T. P. T. 1967. The metabolism of putrescine (1,4-diaminobutane) by mycobacteria isolated from fish. I. Preliminary studies with intact cells. Can. J. Microbiol. 13: 511-519.
 1498. EVELYN, T. P. T. 1967. The metabolism of putrescine (1,4-diaminobutane) by mycobacteria isolated from fish. II. Studies with arsenite-inhibited cells and cell-free extracts. Can. J. Microbiol. 13: 521-531.
 1499. PARKER, R. R., AND L. MARGOLIS. 1967. A redescription of the syntypes of *Caligus rapax* H. Milne Edwards, 1840 (Copepoda, Caligidae) and the misuse of this name since 1850. Crustaceana 12: 87-101.
 1500. WERNER, A. E. 1968. Gases from sediments in polluted coastal waters. Pulp Paper Mag. Can. 69: 127-136.
 1501. KABATA, Z. 1967. The genus *Haemobaphes* (Copepoda: Lernaecercidae) in the waters of British Columbia. Can. J. Zool. 45: 853-875.
 1502. POZAR, D. F. 1968. An automatic wet-food dispenser. Progr. Fish-Cult. 30: 113-115. (1)
 1503. SHELDON, R. W., T. P. T. EVELYN, AND T. R. PARSONS. 1967. On the occurrence and formation of small particles in seawater. Limnol. Oceanogr. 12: 367-375.
 1504. STEPHENS, K. 1967. Continuous measurement of turbidity. Deep-Sea Res. 14: 465-467. (1)
 1505. KE, P. J., AND L. W. REGIER. 1971. Direct potentiometric determination of fluoride in water after 8-hydroxyquinoline extraction. Anal. Chim. Acta 53: 23-29.
 1506. IDLER, D. R., AND P. WISEMAN. 1971. Identification of 22-cis-cholesta-5,22-dien-3 β -ol and other scallop sterols by gas-liquid chromatography and mass spectrometry. Comp. Biochem. Physiol. 38A: 581-590.
 1507. WELLS, R. 1968. Haddock length conversion factors for St. Pierre Bank. Int. Comm. Northwest Atl. Fish. Res. Bull. 5: 137-140. (9)
 1508. YAMAMOTO, M. 1971. Purification and some properties of an acid deoxyribonuclease from testes of chinook salmon *Oncorhynchus tshawygscha*. Biochim. Biophys. Acta 228: 95-104.
 1509. BUTTKUS, H. 1970. Accelerated denaturation of myosin in frozen solution. J. Food Sci. 35: 558-562.
 1510. SPRAGUE, J. B. 1970. Measurement of pollutant toxicity to fish. II. Utilizing and applying bioassay results. Water Res. 4: 3-32.
 1511. EMERY, K. O., C. A. KAYE, D. H. LORING, AND D. J. G. NOTA. 1968. European cretaceous flints on the coast of North America. Science 160: 1225-1228.
 1512. PLATFORD, R. F. 1968. Isopiestic measurements on the system water-sodium chloride-

- magnesium chloride at 25°. J. Phys. Chem. 72: 4053-4057.
1513. McALLISTER, C. D. 1970. Zooplankton rations, phytoplankton mortality and the estimation of marine production, p. 419-457. In J. H. Steele [ed.] Marine food chains. Oliver & Boyd, Edinburgh.
1514. ACKMAN, R. G., C. A. EATON, AND C. LITCHFIELD. 1971. Composition of wax esters, triglycerides and diacyl glyceryl ethers in the jaw and blubber fats of the Amazon River dolphin (*Inia geoffrensis*). Lipids 6: 69-77.
1515. PLATFORD, R. F. 1968. Isopiestic measurements on the system $H_2O-NaCl-Na_2SO_4$ at 25° C. J. Chem. Eng. Data 13: 46-48.
1516. BUDLONG, J. P. 1968. Bridge and amplifier monitor d-c level. Electronics Sept. 2: 71-72.
1517. BUDLONG, J. P. 1969. UJT gives frequency divider an immunity to input jitter. Electronics July 7: 105.
1518. BUTLER, T. H. 1970. Synopsis of biological data on the prawn *Pandalus platyceros* Brandt, 1851. FAO Fish. Rep. 4: 1288-1315.
1519. GREENFIELD, L. J., R. D. HAMILTON, AND C. WEINER. 1970. Nondestructive determination of protein, total amino acids, and ammonia in marine sediments. Bull. Mar. Sci. 20: 289-304.
1520. PIPPY, J. H. C., AND F. A. ALDRICH. 1969. *Hepatoxylon trichiuri* (Holden 1802) (Cestoda-Trypanorhyncha) from the giant squid *Architeuthis dux* Steenstrup 1857 in Newfoundland. Can. J. Zool. 47: 263-264.
1521. MARKERT, J. R., AND W. E. VANSTONE. 1968. Egg proteins of Pacific salmon, genus *Oncorhynchus*: proteins in the soluble fraction. Can. J. Biochem. 46: 1334-1337.
1522. GOLDSACK, D. E., R. E. HURST, AND J. LOVE. 1969. A pressure jump apparatus with optical detection. Anal. Biochem. 28: 273-281.
1523. TARR, H. L. A., AND J. E. ROY. 1967. Fish-muscle purine and pyrimidine nucleoside phosphorylases. Can. J. Biochem. 45: 409-419.
1524. ROY, J. E., AND K. L. ROY. 1967. The mechanism and specificity of guanine deaminase. Can. J. Biochem. 45: 1263-1269.
1525. TARR, H. L. A., J. E. ROY, AND M. YAMAMOTO. 1968. Fish liver pyrimidine deoxynucleoside phosphorylase and deoxyribosyltransferase. Can. J. Biochem. 46: 407-415.
1526. BUTLER, D. G., E. M. DONALDSON, AND W. C. CLARKE. 1969. Physiological evidence for a pituitary-adrenocortical feedback mechanism in the eel (*Anguilla rostrata*). Gen. Comp. Endocrinol. 12: 173-176.
1527. IDLER, D. R., AND P. WISEMAN. 1971. Sterols of Crustacea. Int. J. Biochem. 2: 91-98. (8)
1528. COX, R. E., J. R. MAXWELL, G. EGLINTON, C. T. PILLINGER, R. G. ACKMAN, AND S. N. HOOPER. 1970. The geological fate of chlorophyll: the absolute stereochemistries of a series of acyclic isoprenoid acids in a 50 million year old lacustrine sediment. Chem. Commun. 1970: 1639-1641.
1529. CHAU, Y. K., V. K. CHAWLA, H. F. NICHOLSON, AND R. A. VOLLENWEIDER. 1970. Distribution of trace elements and chlorophyll *a* in Lake Ontario. Proc. Conf. Great Lakes Res. 13: 659-672.
1530. WHYTE, J. N. C., AND J. R. ENGLAR. 1971. Polysaccharides of the red alga *Rhodomenia pertusa* Part II. Cell-wall glucan; proton magnetic resonance studies on permethylated polysaccharides. Can. J. Chem. 49: 1302-1305.
1531. KASON, W. R., S. NAKAI, AND R. J. BOSE. 1971. Interaction of α_{s1} -casein with polyethylenimine. J. Dairy Sci. 54: 461-466.
1532. ELGMORK, K., AND O. A. SAETHER. 1970. Distribution of invertebrates in a high mountain brook in the Colorado Rocky Mountains. Univ. Colo. Stud. Ser. Biol. 31: 1-55 p.
1533. SAETHER, O. A. 1970. Chironomids and other invertebrates from North Boulder Creek, Colorado. Univ. Colo. Stud. Ser. Biol. 31: 56-114.
1534. STANTON, M. P. 1971. Syringe procedure for transfer of nanogram quantities of mercury vapor for flameless atomic absorption spectrophotometry. Anal. Chem. 43: 625-627.
1535. LILEY, N. R., AND E. M. DONALDSON. 1969. The effects of salmon pituitary gonadotropin on the ovary and the sexual behavior of the female guppy, *Poecilia reticulata*.
1536. HAMILTON, A. L., AND O. A. SAETHER. 1971. The occurrence of characteristic deformities in the chironomid larvae of several Canadian lakes. Can. Entomol. 103: 363-368.
1537. SHELDON, R. W. 1969. A universal grade scale for particulate materials. Proc. Geol. Soc. London 1659: 293-295.
1538. PLATT, T., AND D. V. SUBBARAO. 1970. Energy flow and species diversity in a marine phytoplankton bloom. Nature 227(5262): 1059-1060.
1539. TRITES, R. W. 1969. Capacity of an estuary to accept pollutants, p. 148-160. In Proceedings of the conference on pollution, St. Mary's University, Halifax, N.S., Aug. 24-26, 1969. Chemical Institute of Canada, Ottawa, Ont.
1540. PINHORN, A. T., AND R. WELLS. 1970. Catch/effort assessments for the major cod stocks in ICNAF Subareas 2 and 3. Int. Comm. Northwest Atl. Fish. Redbook 1970(3): 65-74.
1541. PITT, T. K. 1970. Trends in the American plaice fishery in ICNAF Subarea 3. Int. Comm. Northwest Atl. Fish. Redbook 1970(3): 103-110.
1542. TEMPLEMAN, W. 1970. Temperatures and salinities in the eastern Newfoundland area in 1969. Int. Comm. Northwest Atl. Fish. Redbook 1970(3): 11-21.

1543. BRINKHURST, R. O., A. L. HAMILTON, AND H. B. HERRINGTON. 1968. Components of the bottom fauna of the St. Lawrence, Great Lakes. Great Lakes Inst. Univ. Toronto PR 33: 50 p.
1544. MERCER, M. C. 1970. Sur la limite septentrionale du calmar. *Natur. Can.* 97: 823-824.
1545. NYMAN, O. L. 1970. Electrophoretic analysis of hybrids between salmon (*Salmo salar* L.) and trout (*Salmo trutta* L.) Trans. Amer. Fish. Soc. 99: 229-236.
1546. MERCER, M. C. 1970. Cephalopod resources and fisheries in the Northwest Atlantic. Amer. Malacol. Union Annu. Rep. Bull. 1970: 30-33.
1547. NYMAN, O. L. 1970. Ecological interaction of brown trout, *Salmo trutta* L., and brook trout, *Salvelinus fontinalis* (Mitchill), in a stream. *Can. Field-Natur.* 84: 343-350.
1548. WHYTE, J. N. C. 1971. Polysaccharides of the red seaweed *Rhodomenia pertusa* Part I. Water-soluble glucan. *Carbohydrate Res.* 16: 220-224.
1549. BOSE, R. J., AND M. D. PETERS. 1971. Occurrence and origin of the tropylium ion in the mass spectra of arylboronic acid esters. *Can. J. Chem.* 49: 1766-1770.
1550. SUTTERLIN, A. M., AND R. L. SAUNDERS. 1969. Proprioceptors in the gills of teleosts. *Can. J. Zool.* 47: 1209-1212.
1551. CADDY, J. F. 1969. Development of mantle organs, feeding, and locomotion in postlarval *Macoma balthica* (L.) (Lamellibranchiata). *Can. J. Zool.* 47: 609-617.
1552. SPRAGUE, J. B., P. F. ELSON, AND J. R. DUFFY. 1971. Decrease in DDT residues in young salmon after forest spraying in New Brunswick. *Environ. Pollut.* 1: 191-203.
1553. BESCH, K. W., AND P. ROBERTS-PICHETTE. 1970. Effects of mining pollution on vascular plants in the Northwest Miramichi River system. *Can. J. Bot.* 48: 1647-1656.
1554. HUGHES, G. M., AND R. L. SAUNDERS. 1970. Responses of the respiratory pumps to hypoxia in the rainbow trout (*Salmo gairdneri*). *J. Exp. Biol.* 53: 529-545.
1555. SYMONS, P. E. K. 1970. Claw-shuddering behavior of the shore crab *Hemigrapsus oregonensis*. *Can. Field Natur.* 84(1): 2 p. (6)
1556. PETERSON, R. H., AND J. M. ANDERSON. 1969. Effects of temperature on brain tissue oxygen consumption in salmonid fishes. *Can. J. Zool.* 47: 1345-1353.
1557. AIKEN, D. E. 1969. Ovarian maturation and egg laying in the crayfish *Orconectes virilis*: influence of temperature and photoperiod. *Can. J. Zool.* 47: 931-935.
1558. WILDISH, D. J. 1970. The toxicity of polychlorinated biphenyls (PCB) in sea water to *Gammarus oceanicus*. *Bull. Environ. Contam. Toxicol.* 5: 202-204.
1559. HAMILTON, R. D., AND J. E. PRESLAN. 1969. Cultural characteristics of a pelagic marine hymenostome ciliate, *Uronema* sp. *J. Exp. Mar. Biol. Ecol.* 4: 90-99.
1560. TARR, H. L. A., AND L. GARDNER. 1971. Deoxyribonucleic acid polymerase from immature testes of salmon. *Can. J. Biochem.* 49: 19-27.
1561. BUTTKUS, H. 1971. The sulfhydryl content of rabbit and trout myosins in relation to protein stability. *Can. J. Biochem.* 49: 97-107. (2)
1562. IDLER, D. R., D. A. HORNE, AND G. B. SANGALANG. 1971. Identification and quantification of the major androgens in testicular and peripheral plasma of Atlantic salmon (*Salmo salar*) during sexual maturation. *Gen. Comp. Endocrinol.* 16: 257-267.
1563. RONALD, A. P., AND H. TSUYUKI. 1971. The subunit structures and the molecular basis of the multiple hemoglobins of two species of trout. *Salmo gairdneri* and *S. clarki clarki*. *Comp. Biochem. Physiol.* 39B: 195-202.
1564. HOOPER, S. N., AND R. G. ACKMAN. 1971. Trans-6-hexadecenoic acid and the corresponding alcohol in lipids of the sea anemone *Metridium dianthus*. *Lipids* 6: 341-346.
1565. BOYCE, N. P. J. 1971. An instrument for removing cephalic sections of nematodes. *Trans. Amer. Microsc. Soc.* 90: 89-92.
1566. KABATA, Z. 1971. *Lernanthropus togatus* sp. n. (Copepoda: Dichelethiidae), a parasite of *Gasterin* sp. (Pisces: Teleostei) in the Indian Ocean. *J. Parasitol.* 57: 157-160.
1567. KABATA, Z. 1970. Crustacea as enemies of fishes. In S. F. Snieszko and H. R. Axelrod [ed.] Diseases of fishes. Book 1. T. F. H. Publications, Inc., Jersey City, New Jersey. 197 p. + 105 fig.
1568. KABATA, Z. 1970. Copepoda parasitic on Australian fishes. X. Families Eudactylinidae and Pseudocycnidae. *J. Natur. Hist.* 4: 159-173.
1569. ZITKO, V. 1971. Determination of residual fuel oil contamination of aquatic animals. *Bull. Environ. Contam. Toxicol.* 5: 559-564.
1570. WILDISH, D. J., AND V. ZITKO. 1971. Uptake of polychlorinated biphenyls from sea water by *Gammarus oceanicus*. *Mar. Biol. (Berlin)* 9: 213-218.
1571. TSUYUKI, H., AND A. P. RONALD. 1971. Molecular basis for multiplicity of Pacific salmon hemoglobins: evidence for *in vivo* existence of molecular species with up to four different polypeptides. *Comp. Biochem. Physiol.* 39B: 503-522.
1572. ACKMAN, R. G., S. N. HOOPER, AND P. J. KE. 1971. The distribution of saturated and isoprenoid fatty acids in the lipids of three species of molluscs, *Littorina littorea*, *Crassostrea virginica* and *Venus mercenaria*. *Comp. Biochem. Physiol.* 39B: 579-587.

1573. BECK, B., T. G. SMITH, AND A. W. MANSFIELD. 1970. Occurrence of the harbour seal, *Phoca vitulina* Linnaeus, in the Thlewiaza River, N.W.T. Can. Field-Natur. 84: 297-300.
1574. QUAY, W. B., AND E. D. MITCHELL. 1971. Structure and sensory apparatus of oral remnants of the nasopalatine canals in the fin whale (*Balaenoptera physalus* L.). J. Morphol. 134: 271-279.
1575. SERGEANT, D. E. 1969. Feeding rates of Cetacea. Fiskeridir. Skr. Ser. Havunders. 15: 246-258.
1576. SANGALANG, G. B., M. WEISBART, AND D. R. IDLER. 1971. Steroids of a chondrosteian: corticosteroids and testosterone in the plasma of the American Atlantic sturgeon, *Acipenser oxyrinchus* Mitchill. J. Endocrinol. 50: 413-421.
1577. BURSA, A. S. 1970. *Dinamoebidium coloradense* spec. nov. and *Katodinium auratum* spec. nov. in Como Creek, Boulder County, Colorado. Arctic Alpine Res. 2: 145-151.
1578. BURSA, A. S. 1970. *Dinamoebidium hyperboreum* spec. nov. in coastal plankton of Ellesmere Island, N.W.T., Canada. Arctic Alpine Res. 2: 152-154.
1579. PLATT, T. 1971. The annual production by phytoplankton in St. Margaret's Bay, Nova Scotia. J. Cons. Int. Explor. Mer 33: 324-334.
1580. HUGHES, R. N., AND M. L. H. THOMAS. 1971. The classification and ordination of shallow-water benthic samples from Prince Edward Island, Canada. J. Exp. Mar. Biol. Ecol. 7: 1-39.
1581. SERGEANT, D. E. 1970. Migration and orientation in harp seals. Proc. Annu. Conf. Biol. Sonar Diving Mammals 7: 123-131.
1582. RICKER, W. E. 1970. A. N. Derzhavin's biostatistical method Ryb. Khoz. 46(10): 6-9, 46(11): 5-7; 1971. Comparison of two reproduction curves. Ryb. Khoz. 47(3): 16-21, 47(4): 10-13. [In Russian]
1584. ZITKO, V., AND S. N. TIBBO. 1971. Fish kill caused by an intermediate oil from coke ovens. Bull. Environ. Contam. Toxicol. 6: 24-25.
1585. STRASDINE, G. A. 1968. Amylopectin accumulation in *Clostridium botulinum* type E. Can. J. Microbiol. 14: 1059-1062.
1586. PLATT, T., AND R. J. CONOVER. 1971. Variability and its effect on the 24th chlorophyll budget of a small marine basin. Mar. Biol. 10: 52-65.
1587. LIPPS, J. H., J. W. VALENTINE, AND E. MITCHELL. 1968. Pleistocene paleoecology and biostratigraphy Santa Barbara Island, California. J. Paleontol. 42: 291-307.
1588. SAETHER, O. A. 1971. Nomenclature and phylogeny of the genus *Harnischia* (Diptera: Chironomidae). Can. Entomol. 103: 347-362.
1589. BURSA, A. S. 1971. Morphogenesis and taxonomy of fossil and contemporary Dinophyta secreting discoasters. Proc. Planktonic Conf. Roma 1970, 11: 129-143.
1590. BRETT, J. R. 1970. 3. Temperature. 3.3. Animals. 3.32. Fishes, p. 513-560. In O. Kinne [ed.] Marine ecology. Vol. 1. Environmental factors, Part. 1. Wiley-Interscience, London, New York, Sydney, and Toronto.
1591. ACKMAN, R. G. 1971. Pristane and other hydrocarbons in some freshwater and marine fish oils. Lipids 6: 520-522.

INTERPRETIVE ARTICLES OF THE FISHERIES RESEARCH BOARD OF CANADA

Abbreviation : A

58. FARLEY J., AND J. H. C. PIPPY. 1969. La dé-mangeaison des nageurs. La Pêche au Canada Mai: 3-7.
109. THOMAS, M. L. H. 1969. L'herbicide 2,4-D. La zostère et sa répression. La Pêche au Canada Février: 3-7.
128. YATES, A. N. 1969. Les casiers à crevettes: objet d'expériences menées en C.-B. La Pêche au Canada Octobre: 3-8.
178. UTHE, J. F., F. A. J. ARMSTRONG, AND M. P. STANTON. 1970. Rapid determination of residual levels of mercury in fish tissue and results of a check sample program. Rep. 5th Pesticide Residue Analysis Seminar, Vancouver, B.C., May. p. 156-164.
179. SANDEMAN, E. J. 1970. Comme un poisson dans l'eau. La Pêche au Canada Octobre: 9-11.
180. STEWART, J. E., AND H. RABIN. 1970. Gaff-kemia, a bacterial disease of lobsters (genus *Homarus*), p. 431-439. In S. F. Snieszko [ed.] A symposium on diseases of fishes and shellfishes. American Fisheries Society, Washington, D.C., Spec. Publ. 5.
181. TEMPLEMAN, W. 1970. Reports on researches in the ICNAF area in 1969. Canadian research report, 1969. Subareas 1, 2 and 3. ICNAF Redbook 1970, Part II. p. 3-17.
182. SCOTT, J. S. 1970. Reports on researches in the ICNAF area in 1969. Canadian research report, 1969. Subareas 4 and 5. ICNAF Redbook 1970, Part II. p. 17-29.
183. PARSONS, T. R. 1970. Bases of resource management oceanography, p. 1-8. In Environmental management, a British Columbia priority. Primary Industries Programs, Center for Continuing Education, Univ. of British Columbia, Vancouver, B.C., Oct. 26-27, 1970.
184. MANSFIELD, A. W. 1970. Population dynamics and exploitation of some arctic seals. Antarctic Ecol. 1: 429-446.
185. WINTERS, G. H. 1967. The capelin, Newfoundland's latent resource. Nfld. J. Commer. 34(8): 7, 8, 46-47.

186. KABATA, Z. 1971. Review of "Infectious diseases of fishes and their control," edited by O. N. Bauer. *J. Fish. Biol.* 69: 2 p.
187. WALDICHUK, M. 1968. Sewage pollution in confined coastal waters. *Pacific Search* 68-16: 2 p.
188. LEBRASSEUR, R. J. 1968. Marine biology in Saanich Inlet. *Pacific Search* 68-21: 2 p.
189. RICKER, W. E. [ed.] 1968. Methods for assessment of fish production in fresh waters, p. 1-6, 255-269. IBP Handbook No. 3. Blackwell Scientific Publications, Oxford and Edinburgh.
190. LEAR, W. H. 1968. Greenland halibut. *Nfld. J. Commer.* 35(8): 21, 22, 38.
191. WELLS, R. 1968. Report on American plaice eggs and larvae. ICNAF Spec. Publ. 7(Pt. I): 181-182; (Pt. II): 266-278.
192. MAY, A. W. 1969. Marine fisheries for atlantic salmon. *Arctic Circ.* 19: 31-38.
193. WINTERS, G. H. 1969. Capelin (*Mallotus villosus*). Canadian fisheries, p. 94-101. In F. E. Firth [ed.] *Encyclopedia of marine resources*. Reinhold Publishing Corp., New York, N.Y.
194. FLEMING, A. M. 1969. Navigation. Newfoundland fisheries, p. 434-440. In F. E. Firth [ed.] *Encyclopedia of marine resources*. Reinhold Publishing Corp., New York, N.Y.
195. MAY, A. W. 1969. Labrador fisheries, p. 342-346. In F. E. Firth [ed.] *Encyclopedia of marine resources*. Reinhold Publishing Corp., New York, N.Y.
196. DICKIE, L. M. 1968. Review of "Fisheries biology: a study in population dynamics," by D. H. Cushing. *Limnol. Oceanogr.* 13: 729-730.
197. BEAMISH, F. W. H., AND L. M. DICKIE. 1967. Metabolism and biological production in fish, p. 215-242. In *Biological basis of freshwater fish production*. Blackwell Scientific Publications, Oxford and Edinburgh.
198. IDLER, D. R. 1970-71. Stable protein from the sea. *Sci. Affairs* 4: 85-87.
199. LORING, D. H. 1967. Resume of marine geological investigations carried out by the Atlantic Oceanographic Group in the Gulf of St. Lawrence, 1964-1966. *Marit. Sediments* 3(1): 24-26.
200. BLIGH, E. G. 1970. Mercury contamination in fish. *Twentieth Annu. Inst. for Publ. Health Inspectors, Man. Dep. Health Social Develop.*, Oct. 19-23. 10 p.
201. BLIGH, E. G. 1971. Environmental factors affecting the utilization of Great Lakes fish as human food. *Limnos* 4: 10 p., 5 fig.
202. MAY, A. W. 1971. Salmon exploited at sea. *The Mail-Star*, February 19, p. 12-13.
203. TARR, H. L. A. 1970. Seafood — progress in sanitation and quality. E. L. Technical Symposium, Research and Development Department, Economics Laboratory, Inc., Mendota Heights, Minnesota, Sept. 16-17, 1970. 13 p.
204. FISHERIES RESEARCH BOARD OF CANADA. 1967. III. The research program. A. Progress in 1965 in Canadian research on problems raised by the protocol. INPFC Annu. Rep. 1965. p. 27-41.
205. MAY, A. W. 1971. Scientific problems relative to the West Greenland salmon fishery. *Atlantic Salmon J.* 1: 11-13.
206. HALLIDAY, R. G. 1970. 4T-V-W haddock: recruitment and stock abundance in 1970-71. ICNAF Redbook 1970 Part III. p. 84-95.
207. ILES, T. D., AND S. N. TIBBO. 1970. Recent events in Canadian Atlantic herring fisheries. ICNAF Redbook 1970 Part III. p. 134-147.
208. ILES, T. D. 1970. Vertebral numbers of the Bay of Fundy herring. ICNAF Redbook 1970 Part III. p. 148-151.
209. MACASKIE, I. B. 1971. A sea otter transplant to British Columbia. *Fish. Can.* 23(4): 3-9.
210. PARSONS, T. R. 1968. Review of "Marine chemistry. Vol. 1: Analytical methods," by D. F. Martin. *Limnol. Oceanogr.* 13: 726.
211. PARSONS, T. R., AND R. J. LEBRASSEUR. 1968. The availability of food to different trophic levels in the marine food chain, p. 325-343. In J. H. Steele [ed.] *Marine food chains*. Oliver and Boyd, Edinburgh.
212. BRETT, J. R. 1970. Fish — the energy cost of living, p. 37-82. In W. J. McNeil [ed.] *Marine aquiculture*. Oregon State University, Corvallis, Oreg.
213. WILDER, D. G. 1971. Artificial rearing of lobsters. *Fish. Can.* 23(3): 14, 15. 1970-71. L'élevage du homard ses perspectives. *La Pêche au Canada Décembre-Janvier*: 20, 21.
214. JANGAARD, P. M. 1969. Sex hormone research linked to development of fish farming. *Fish. Can.* 21(10): 9-11.
215. JANGAARD, P. M. 1967. Review of "Fishery by-products technology," by J. Brody. *Trans. Amer. Fish. Soc.* 96: 232-233.
216. VALLENTYNE, J. R. 1970. Phosphorus and the control of eutrophication. *Can. Res. Develop.* 3(3): 36-43, 49.
217. WATSON, J. 1969. Etude biologique du crabe des neiges *Chionoecetes opilio*. *La Pêche au Canada Août*: 13.
218. TARR, H. L. A. 1969. Fisheries research. *Oceanol. Int. Yearbook* 1969: 33-34.
219. HODDER, V. M. 1970. Recent events in the Canadian Atlantic herring fisheries (résumé). *Proc. Can. Soc. Wildlife Fish. Biol. Atl. Chap. Annu. Meet.* Nov. 4-6, 1970. p. 135-137.
220. JANGAARD, P. M. 1970. FRB scientists play important role in year-long research cruise. *Fish. Can.* 22(10): 16-18.
221. CHANDLER, R. A., AND J. C. MEDCOF. 1969. A catch 20 million years old. *Fish. Can.* 21(8): 15-16.

222. ANDERSON, J. M. 1971. Assessment of the effects of pollutants on physiology and behavior. *Proc. Roy. Soc. London B* 177: 307-320.
223. MANN, K. H., AND J. B. SPRAGUE. 1970. Combating pollution on the east coast of Canada. *Mar. Pollut. Bull.* 75-77.
224. LAWLER, G. H. Parasites of coregonid fishes, 279-309. *In* C. C. Lindsey and C. S. Woods [ed.] *Biology of coregonid fishes*. Univ. of Manitoba Press, Winnipeg, Man.
225. FISHERIES RESEARCH BOARD OF CANADA (Freshwater Institute, Winnipeg). 1971. FRB engineer invents portable fish plant for flying to remote locations. *Can. Fisherman Ocean Sci.* 57(1): 33.
226. DRUMMOND, G. I., AND M. YAMAMOTO. 1971. Nucleoside cyclic phosphate diesterases. *In* *The enzymes*. 3rd ed. Vol. 4. Chap. 16. p. 355-370.
227. DRUMMOND, G. I., AND M. YAMAMOTO. 1971. Nucleotide phosphomonoesterases. *In* *The enzymes*. 3rd ed. Vol. 4. Chap. 15. p. 337-354.
228. MANSFIELD, A. W. 1969. Review of "Jakob Danielsen — a Greenlandic painter," by Ph. Rosendahl. *North March-April*: 43.
229. SERGEANT, D. E. 1969. Review of "Age determination of mammals by layered structure in teeth and bones," by G. A. Klevezal' and S. E. Kleinenberg. (Transl. from Russian by Fish. Res. Bd. Can. Transl. Ser. No. 1024.) *J. Mammal.* 50: 163-164.
230. WEIR, J. R. 1971. Food from a northern environment. *Can. Inst. Food Technol. J.* 4(2): A24-A28.
231. HUNTER, J. G. 1971. Fisheries Research Board studies in Canada's Arctic. *Can. Geograph. J.* 82: 100-107.
232. WALDICHUK, M. 1971. Radioactivity in the marine environment. A summary. *Nat. Acad. Sci. Nat. Res. Council, Washington, D.C.* vi + 28 p.
233. JOHNSON, W. E., AND J. R. VALLENTYNE. 1970. Ecology and our pollution problems. *Habitat* 13(5&6): 4-9.

Journal
OF THE Fisheries
Research
Board
OF Canada

Volume 28

1971

Journal
Fisheries
Research
Board
Canada

The *Journal of the Fisheries Research Board of Canada* has been published continuously since 1901, previously as *Contributions to Canadian Biology* 1901-1925, *Contributions to Canadian Biology and Fisheries*, 1926-1934, and *Journal of the Biological Board of Canada*, 1934-1937. The *Journal* is published in annual volumes of twelve numbers.

The *Journal* is devoted to original research papers and notes concerning aquatic organisms or environments relevant to Canada. Review articles that are critical appraisals of broad areas of research are also welcomed. Submissions in English or French are accepted without limitations as to origin, but must not have been published or copyrighted. Details on submissions are given in guides to authors and typists at the back of each issue.

A charge of \$30.00 per page is made for articles published. The change in format of this volume increases the printed matter per page by about 40 percent, and is reflected in the altered page charge. When submitting a manuscript, an author should state that his institution will accept this charge.

Subscription rates to the *Journal* are: Canada, United States, Mexico, \$12.00 per year; other countries, \$13.50. Single issues are \$1.25 and \$1.50 respectively. Orders must be sent directly to Information Canada, Ottawa, Canada, K1A 0S9.

The *Journal of the Fisheries Research Board of Canada* a été publié sans interruption depuis 1901, sous les noms suivants: *Contributions to Canadian Biology* de 1901 à 1925, *Contributions to Canadian Biology and Fisheries* de 1926 à 1934, *Journal of the Biological Board of Canada* de 1934 à 1937 et finalement le nom qu'il porte présentement. Le *Journal* paraît annuellement en un volume comprenant douze numéros.

Le *Journal* est consacré aux études sur des recherches originales et aux notes concernant les organismes et les environnements aquatiques pertinents au Canada. Des critiques concernant des ouvrages généraux sont aussi appréciés. Des soumissions en anglais ou en français sont acceptées sans limitations d'origine, sauf si elles ont déjà été publiées ou déposées. Des détails sont fournis dans les guides à la fin de chaque numéro.

Les frais sont de \$30.00 par page pour la publication des articles. Le nouveau format de ce volume permet d'augmenter de 40 pour cent le nombre de caractères imprimés par page, ce qui justifie les nouveaux frais de publication de page. Quand un auteur soumet un manuscrit, il doit spécifier que son institution accepte les frais.

Les frais de souscription au *Journal* sont: au Canada, aux Etats-Unis et au Mexique, \$12.00 par année; autres pays, \$13.50. Une seule copie se vend \$1.25 et \$1.50 respectivement. Les commandes doivent être envoyées directement à Information Canada, Ottawa, Canada, K1A 0S9.

Editor/Rédacteur and/et
Director of Scientific Information
Directeur de l'information scientifique

J. C. STEVENSON, PH.D.

Associate Editor
Rédacteur associé

L. W. BILLINGSLEY, PH.D.

Assistant Editors
Rédacteurs adjoints

R. H. WIGMORE, M.SC.
J. WATSON, PH.D.

Production

R. L. MACINTYRE/MONA SMITH, B.H.SC.

Documentation

J. CAMP

Office des recherches sur les pêcheries du Canada
Bureau du directeur de la publication
116, rue Lisgar, Ottawa, Canada
K1A 0H3

Fisheries Research Board of Canada
Office of the Editor, 116 Lisgar Street
Ottawa, Canada
K1A 0H3

CONTENTS

No. 1 (Published January 30, 1971)

Production of dimethylamine in muscle of several species of gadoid fish during frozen storage, especially in relation to presence of dark muscle	C. H. Castell, B. Smith, and W. Neal	1-5
Seasonal changes in the chemical composition and food reserves of the freshwater triclad <i>Dugesia tigrina</i> (Platyhelminthes: Turbellaria)	M. J. Boddington and D. F. Mettrick	7-14
Polymorphisms of esterase isozymes in the American lobster (<i>Homarus americanus</i>)	J. Barlow and G. J. Ridgway	15-21
Taxonomic status of <i>Calanus finmarchicus</i> and <i>C. glacialis</i> (Copepoda), with special reference to adult males	B. W. Frost	23-30
<i>Fistulicola plicatus</i> (Cestoda) and <i>Tristoma</i> spp. (Trematoda) on swordfish from the northwest Atlantic	C. Iles	31-34
Differences in benthos upstream and downstream of an impoundment	J. A. Spence and H. B. N. Hynes	35-43
Differences in fish populations upstream and downstream of a mainstream impoundment	J. A. Spence and H. B. N. Hynes	45-46
Relation of hemosiderin to erythropoiesis in the blue gourami, <i>Trichogaster trichopterus</i>	M.-L. Yu, C. W. Kiley, D. A. Sarot, and A. Perlmutter	47-48
Comparison of size, structure, and distributional patterns of two salamander populations in Marion Lake, British Columbia	J. C. Neish	49-58
DDT residues in Canadian Atlantic fishes and shellfishes in 1967	J. B. Sprague and J. R. Duffy	59-64
Population biology of lake trout (<i>Salvelinus namaycush</i>) of Lake Superior before 1950	G. T. Sakagawa and R. L. Pycha	65-71
Ecological energetics and natural history of <i>Hedriodiscus truquii</i> (Diptera) in two thermal spring communities	J. G. Stockner	73-94
Notes		
Differential growth rate in the tail of the Pacific big skate, <i>Raja binoculata</i>	P. Ford	95-98
Sternal spines as a characteristic for differentiating between females of some Pandalidae	J. A. McCrary	98-100
A device for rapid removal of embryos from fish eggs	R. W. MacKelvie	100-102
Plotting of bathythermograph transect data on a printer	J. B. Reynolds and D. R. McLain	102-103
A proteolytic pseudomonad from skin lesions of rainbow trout (<i>Salmo gairdneri</i>). III. Morphological studies	M. F. Li and G. S. Traxler	104-105
Residues of DDT, DDE, and DDD in fish in the Saskatchewan River after using DDT as a blackfly larvicide for twenty years	F. J. H. Fredeen, J. G. Saha, and L. M. Royer	105-109
Rate at which sockeye salmon alevins are evacuated from the stomach of mountain whitefish (<i>Prosopium williamsoni</i>)	D. McKone	110-111
An undifferentiated hematopoietic neoplasm with histologic manifestations of leukemia in a cutthroat trout (<i>Salmo clarki</i>)	C. E. Smith	112-113
Sampling of fish muscle for M.S. 222 and quinaldine residues	C. W. Luhning and P. D. Harman	113-115
Meristic differences between anadromous and freshwater-resident arctic char (<i>Salvelinus alpinus</i>) in the Sagavanirktok River drainage, Alaska	P. McCart and P. Craig	115-118
Recent articles on FRB investigations published in other periodicals		119
Additional FRB publications		120
Guides to Authors and Typists		i-vii

No. 2 (Published March 5, 1971)

Editor's Foreword		121
Rationale, background, and development of experimental lake studies in northwestern Ontario	W. E. Johnson and J. R. Vallentyne	123-128
Results of the initial survey of the Experimental Lakes Area, northwestern Ontario	T. R. Cleugh and B. W. Hauser	129-137

Geography and bathymetry of selected lake basins, Experimental Lakes Area, northwestern Ontario	G. J. Brunskill and D. W. Schindler	139-155
Light, temperature, and oxygen regimes of selected lakes in the Experimental Lakes Area, northwestern Ontario	D. W. Schindler	157-169
Preliminary chemical characterization of waters in the Experimental Lakes Area, northwestern Ontario	F. A. J. Armstrong and D. W. Schindler	171-187
Primary production and phytoplankton in the Experimental Lakes Area, northwestern Ontario, and other low-carbonate waters, and a liquid scintillation method for determining ^{14}C activity in photosynthesis	D. W. Schindler and S. K. Holmgren	189-201
Chemical factors involved in the control of phytoplankton production in the Experimental Lakes Area, northwestern Ontario	M. Sakamoto	203-213
Periphyton of the Experimental Lakes Area, northwestern Ontario	J. G. Stockner and F. A. J. Armstrong	215-229
Crustacean plankton communities in forty-five lakes in the Experimental Lakes Area, northwestern Ontario	K. Patalas	231-244
Vertical distribution and seasonal abundance of zooplankton in two shallow lakes of the Experimental Lakes Area, northwestern Ontario	D. W. Schindler and B. Novén	245-256
Zoobenthos of fifteen lakes in the Experimental Lakes Area, northwestern Ontario	A. L. Hamilton	257-263
Preliminary characterization of lakes in the Experimental Lakes Area, northwestern Ontario, using diatom occurrences in sediments	J. G. Stockner	265-275
Chemistry of surface sediments of sixteen lakes in the Experimental Lakes Area, northwestern Ontario	G. J. Brunskill, D. Povoledo, B. W. Graham, and M. P. Stainton	277-294
A hypothesis to explain differences and similarities among lakes in the Experimental Lakes Area, northwestern Ontario	D. W. Schindler	295-301
Recent articles on FRB investigations published in other periodicals		303
Additional FRB publications		304
Guides to Authors and Typists		i-vii

No. 3 (Published April 5, 1971)

Trimethylamine-producing bacteria on haddock (<i>Melanogrammus aeglefinus</i>) during refrigerated storage	R. A. Laycock and L. W. Regier	305-309
Crustacean plankton of 146 alpine and subalpine lakes and ponds in western Canada	R. S. Anderson	311-321
Species of <i>Lepeophtheirus</i> (Copepoda, Caligidae) recorded from the ocean sunfish (<i>Mola mola</i>) and their implications for the caligid genus <i>Dentigryps</i>	G. C. Hewitt	323-334
Interactions between some tubificid oligochaetes and bacteria found in the sediments of Toronto Harbour, Ontario	M. Wavre and R. O. Brinkhurst	335-341
Effects of salinity on the survival and growth of pre-smolt coho salmon (<i>Oncorhynchus kisutch</i>)	R. G. Otto	343-349
Relative rates of utilization by commercial and sport fisheries of Atlantic salmon (<i>Salmo salar</i>) from the Miramichi River, New Brunswick	C. J. Kerswill	351-363
A comparison of a simple corer and an Ekman grab for sampling shallow-water benthos	C. G. Paterson and C. H. Fernando	365-368
X-ray spectrometric and multivariate analysis of sockeye salmon (<i>Oncorhynchus nerka</i>) from different geographic regions	J. R. Calaprice	369-377
Dissolved oxygen requirements for embryonic and larval development of the hardshell clam, <i>Mercenaria mercenaria</i>	G. Morrison	379-381
High tide movements and homing behaviour of the tidepool sculpin <i>Oligocottus maculosus</i>	J. M. Green	383-389
The red-water ciliate <i>Mesodinium rubrum</i> and its "incomplete symbionts": a review including new ultrastructural observations	F. J. R. Taylor, D. J. Blackburn, and J. Blackburn	391-407
Satiation time, appetite, and maximum food intake of sockeye salmon (<i>Oncorhynchus nerka</i>)	J. R. Brett	409-415
Reproductive patterns of Pacific ocean perch (<i>Sebastes alutus</i>) off Washington and British Columbia and their relation to bathymetric distribution and seasonal abundance	D. R. Gunderson	417-425

Comparison of the pectoral and pelvic skeletons and of some other bones and their phylogenetic implications in the Aulorhynchidae and Gasterosteidae (Pisces)	J. S. Nelson	427-442
---	--------------	---------

Notes

A versatile Fortran computer program for the capture-recapture stochastic model of G. M. Jolly	E. G. White	443-445
Electronic processing of acoustical data for fishery research	W. H. Lenarz and J. H. Green	446-447
Subcutaneous fibroma in lake trout (<i>Salvelinus namaycush</i>) in Quebec	E. Broughton and L. P. E. Choquette	448-449
Nitrogen excretion and protein consumption of the bluegill sunfish (<i>Lepomis macrochirus</i>)	J. Savitz	449-451
World distribution of brook trout, <i>Salvelinus fontinalis</i> : further observations	H. R. MacCrimmon, B. L. Gots, and J. S. Campbell	452-456
Fecundity of the yellowtail flounder (<i>Limanda ferruginea</i>) from the Grand Bank, Newfoundland	T. K. Pitt	456-457
Response of brook trout (<i>Salvelinus fontinalis</i>) populations to a fishery	A. L. Jensen	458-460
A record of the Atlantic menhaden (<i>Brevoortia tyrannus</i>) from Northumberland Strait	W. H. Lear and J. H. C. Pippy	461-462
Recent articles on FRB investigations published in other periodicals		463
Additional FRB publications		464
Guides to Authors and Typists		i-vii

No. 4 (Published May 3, 1971)

Intraspecific variations and postglacial distribution of lake char (<i>Salvelinus namaycush</i>)	N. Y. Khan and S. U. Qadri	465-476
Histological effects of 11-ketotestosterone, 17 α -methyltestosterone, estradiol, estradiol cypionate, and cortisol on the interrenal tissue, thyroid gland, and pituitary gland of gonadectomized sockeye salmon (<i>Oncorhynchus nerka</i>)	A. P. van Overbeeke and J. R. McBride	477-484
Effects of androgens, estrogens, and cortisol on the skin, stomach, liver, pancreas, and kidney in gonadectomized adult sockeye salmon (<i>Oncorhynchus nerka</i>)	J. R. McBride and A. P. van Overbeeke	485-490
Cardiac and respiratory responses to hypoxia in the sea raven, <i>Hemitripterus americanus</i> , and an investigation of possible control mechanisms	R. L. Saunders and A. M. Sutterlin	491-503
Histological comparisons of the adrenal-cortical cells of hatchery and wild landlocked Atlantic salmon (<i>Salmo salar</i>)	R. M. Davis and O. C. Fenderson	505-508
Pigmentation of brook trout (<i>Salvelinus fontinalis</i>) by feeding dried crustacean waste	A. Saito and L. W. Regier	509-512
A hypothesis of alternation of age of return in successive generations of Skeena River sockeye salmon (<i>Oncorhynchus nerka</i>)	H. T. Bilton	513-516
First records of vibriosis in Pacific salmon cultured in Canada, and taxonomic status of the responsible bacterium, <i>Vibrio anguillarum</i>	T. P. T. Evelyn	517-525
Upper lethal temperatures in relation to osmotic stress in the ribbed mussel <i>Modiolus demissus</i>	D. L. Waugh and E. T. Garside	527-532
<i>Chondrococcus columnaris</i> disease of fishes: influence of Columbia River fish ladders	M. P. Fujihara and F. P. Hungate	533-536
Effects of jaw tagging on growth and scale characteristics of landlocked Atlantic salmon, <i>Salmo salar</i>	K. Warner	537-542
A key to the freshwater Hirudinoidea of Canada	R. W. Davies	543-552
Meristic differences between spring- and autumn-spawning Atlantic herring (<i>Clupea harengus harengus</i>) from southwestern Newfoundland	L. S. Parsons and V. M. Hodder	553-558
Seasonal calorific values of freshwater zooplankton, as determined with a Phillipson bomb calorimeter modified for small samples	D. W. Schindler, A. S. Clark, and J. R. Gray	559-564
Electrical responses of the olfactory epithelium of Atlantic salmon (<i>Salmo salar</i>)	A. M. Sutterlin and N. Sutterlin	565-572

A technique for enumerating kokanee salmon (<i>Oncorhynchus nerka</i>) fry migrating through streams, with an appendix for processing catch data by IBM 360 Fortran IV computer programs	A. H. Acara and H. D. Smith	573-585
Factors influencing scope for activity and active and standard metabolism of rainbow trout (<i>Salmo gairdneri</i>)	I. W. Dickson and R. H. Kramer	587-596
Obituary — John Douglas Hipwell Strickland	T. R. Parsons	597-599

Notes

Investigation of the fatty acid composition of oils and lipids from the sand lance (<i>Ammodytes americanus</i>) from Nova Scotia waters	R. G. Ackman and C. A. Eaton	601-606
Some blood chemistry values for the juvenile coho salmon (<i>Oncorhynchus kisutch</i>)	G. Wedemeyer and K. Chatterton	606-608
A hermaphroditic specimen of weathervane scallop, <i>Patinopecten caurinus</i> , in Alaska	D. Hennick	608-609
Concentrations of dieldrin in the blood and brain of the green sunfish, <i>Lepomis cyanellus</i> , at death	R. L. Hogan and E. W. Roelofs	610-612
Some enzymatic properties of plasma esterases from channel catfish (<i>Ictalurus punctatus</i>)	J. W. Hogan	613-616
Giant American brook lampreys, <i>Lampetra lamottei</i> , in the upper Great Lakes	P. J. Manion and H. A. Purvis	616-620
A range extension for the squid <i>Abraliopsis (Watasenia) felis</i>	I. B. MacAskie	620-621
Recent articles on FRB investigations published in other periodicals		623
Additional FRB publications		624
Guides to Authors and Typists		i-vii

No. 5 (Published June 18, 1971)

Some physiological effects of handling and tricaine methanesulphonate anesthetization upon the brook trout, <i>Salvelinus fontinalis</i>	A. H. Houston, J. A. Madden, R. J. Woods, and H. M. Miles	625-633
Variations in the blood and tissue chemistry of brook trout, <i>Salvelinus fontinalis</i> , subsequent to handling, anesthesia, and surgery	A. H. Houston, J. A. Madden, R. J. Woods, and H. M. Miles	635-642
Effects of gamma irradiation on <i>Salmonella</i> spp. in smoked lake whitefish (<i>Coregonus clupeaformis</i>)	K. Ostovar, R. R. Pereira, and R. A. Gallop	643-646
Results for three generations from transfers of pink salmon (<i>Oncorhynchus gorbuscha</i>) spawn to the Qualicum River in 1963 and 1964	C. E. Walker and D. B. Lister	647-654
Effects of long-term exposures to copper on survival, growth, and reproduction of brook trout (<i>Salvelinus fontinalis</i>)	J. M. McKim and D. A. Benoit	655-662
World distribution of rainbow trout (<i>Salmo gairdneri</i>)	H. R. MacCrimmon	663-704
Biological magnification and degradation of DDT and aldrin by freshwater invertebrates	B. T. Johnson, C. R. Saunders, H. O. Sanders, and R. S. Campbell	705-709
Energy flow and secondary production of the amphipods <i>Hyaella azteca</i> and <i>Crangonyx richmondensis occidentalis</i> in Marion Lake, British Columbia	J. A. Mathias	711-726
Effects of salinity and temperature on embryonic development of the petrale sole (<i>Eopsetta jordani</i>)	D. F. Alderdice and C. R. Forrester	727-744

Notes

Fertilization of chinook and coho salmon eggs with cryo-preserved sperm	A. G. Ott and H. F. Horton	745-748
Geographic variation in the lateral line scale counts of the Arctic grayling, <i>Thymallus arcticus</i>	P. McCart and V. A. Pepper	749-754
Observations on a colony of whelping harbour seals, <i>Phoca vitulina concolor</i> , on Sable Island, Nova Scotia	J. Boulva	755-759
A rapid method of determining ammonium in water with a univalent cation glass electrode	J. Barica	759-764
Fecundity of Atlantic salmon (<i>Salmo salar</i>) from two Maine rivers	E. T. Baum and A. L. Meister	764-767

Helminth parasites of embiotocid fishes. II. A new species of <i>Labrifer</i> (Digenea:Lepo-creadiidae) from <i>Zalembius rosaceus</i> from California	H. P. Arai	767-769
A liquid scintillation method for assaying ¹⁴ C-labelled benthic microflora	D. M. Skauen, N. Marshall, and R. J. Fragala	769-770
Life history of rainbow trout (<i>Salmo gairdneri</i>) in Batchawana Bay, eastern Lake Superior	W.-H. Kwain	771-775
Lipid and caloric contents of the relict amphipod <i>Pontoporeia affinis</i> in Cayuga Lake, New York	R. H. Green	776-777
Relation between stipe length, environment, and the taxonomic characters of <i>Laminaria</i>	K. H. Mann	778-780
A simple improvement in the vascular catheterization procedure for salmonid and other teleost fishes	A. H. Houston	781-783
Effects of washing freshwater fish on keeping quality	D. C. Gillespie and K. Ostovar	783-785
Preliminary survey of heavy metal contamination of Canadian freshwater fish	J. F. Uthe and E. G. Bligh	786-788
Analysis of ammonium-nitrogen in artificial seawater aquaria	R. D. Ellender, C. L. Armour, and B. J. Camp	788-789
Influence of nutrient enrichment on photosynthesis and assimilation ratios in natural North Pacific phytoplankton communities	W. A. Glooschenko and H. Curl, Jr.	790-793
Accumulation of yellow phosphorus by several marine invertebrates and seaweed	G. L. Fletcher	793-796
Recent articles on FRB investigations published in other periodicals		797-798
Additional FRB publications		799
Guides to Authors and Typists		i-vii

No. 6 (Published July 16, 1971)

Analysis of laboratory experiments on growth efficiency of fishes	S. R. Kerr	801-808
Prediction of fish growth efficiency in nature	S. R. Kerr	809-814
A simulation model of lake trout growth	S. R. Kerr	815-819
Gillnet selectivity on sockeye (<i>Oncorhynchus nerka</i>) and pink salmon (<i>O. gorbuscha</i>) of the Skeena River system, British Columbia	I. St. P. Todd and P. A. Larkin	821-842
Zinc retention in young rats fed increasing levels of high-zinc oysters	B. G. Shah, J. C. Meranger, B. Belonje, and D. S. Deshmukh	843-848
Sampling benthos and substrate materials, down to 50 microns in size, in shallow streams	J. H. Mundie	849-860
Effects of feeding level on circlus formation on scales of young sockeye salmon (<i>Oncorhynchus nerka</i>)	H. T. Bilton and G. L. Robins	861-868
Octopine in postmortem adductor muscle of the sea scallop (<i>Placopecten magellanicus</i>)	D. F. Hiltz and W. J. Dyer	869-874
Eggt virus: demonstration of neutralizing antibodies in serum from artificially infected rainbow trout (<i>Salmo gairdneri</i>)	P. E. Vestergård Jørgensen	875-877
Enolase from lobster (<i>Homarus americanus</i>)	M. J. Chapman, C. Chin, and F. Wold	879-882
Effects of salinity, temperature, and dissolved oxygen on early development of the Pacific cod (<i>Gadus macrocephalus</i>)	D. F. Alderdice and C. R. Forrester	883-902
Habitat segregation in sanguinicolid blood flukes (Digenea) of scorpaenid rockfishes (Perciformes) on the Pacific coast of North America	J. C. Holmes	903-909
Particulate carbon:nitrogen relations in northern Chesapeake Bay	D. A. Flemer and R. B. Biggs	911-918

Notes

Effects of temperature on movements of prespawning brook sticklebacks, <i>Culaea inconstans</i> , in the Roseau River, Manitoba	J. A. MacLean and J. H. Gee	919-923
Temperature requirements for growth and survival of larval ciscos (<i>Coregonus artedii</i>)	J. H. McCormick, B. R. Jones, and R. F. Syrett	924-927
Extension of the known range of the masked greenling, <i>Hexagrammos octogrammus</i> , to British Columbia	A. E. Peden	927-928
Food of two cohabiting tide-pool Cottidae	R. Nakamura	928-932

Recent articles on FRB investigations published in other periodicals	933
Additional FRB publications	934
Guides to Authors and Typists	i-vii

No. 7 (Published August 20, 1971)

Periodic and resident components in communities of Atlantic fishes	A. V. Tyler	935-946
Effects of blood pathway on the blood-pressure drop in fish gills, with special reference to tunas	B. S. Muir and C. E. Brown	947-955
Vulnerability of some fishes to northern pike (<i>Esox lucius</i>) predation	W. L. Mauck and D. W. Coble	957-969
Life history, ecological production, and an empirical mathematical model of the population of <i>Sagitta elegans</i> in St. Margaret's Bay, Nova Scotia	D. D. Sameoto	971-985
Trouts of the Upper Kern River Basin, California, with reference to systematics and evolution of western North American <i>Salmo</i>	C. B. Schreck and R. J. Behnke	987-998
Spacing and density in schooling threespine sticklebacks (<i>Gasterosteus aculeatus</i>) and mummichog (<i>Fundulus heteroclitus</i>)	P. E. K. Symons	999-1004
Genetics of multiple malate dehydrogenase isozymes in skeletal muscle of walleye (<i>Stizostedion vitreum vitreum</i>)	J. W. Clayton, D. N. Tretiak, and A. H. Kooyman	1005-1008
Discreteness of Atlantic herring (<i>Clupea harengus harengus</i>) populations in spring and autumn fisheries in the southern Gulf of St. Lawrence	S. N. Messieh and S. N. Tibbo	1009-1014
Lysosomal triglyceride lipase from the lateral line tissue of rainbow trout (<i>Salmo gairdneri</i>)	E. Bilinski, R. E. E. Jonas, and Y. C. Lau	1015-1018
Role of social behavior in dispersal of introduced rainbow trout (<i>Salmo gairdneri</i>)	T. M. Jenkins, Jr.	1019-1027
Fecundity of the left and right ovaries of Grand Bank capelin (<i>Mallotus villosus</i>)	G. H. Winters	1029-1033
Quick statistical methods for analysing the sequences of fish counts provided by digital echo counters	I. B. MacNeill	1035-1042
Determination of nitrilotriacetic acid in inland waters by gas chromatography of the trimethyl ester	D. Murray and D. Povoledo	1043-1047

Notes

An interstitial water-sampling receptacle for intertidal mud flats	E. P. Creaser, Jr.	1049-1051
Maturity and fecundity of the white seaperch (<i>Phanerodon furcatus</i>) from Tomales Bay, California	T. Banerjee	1051-1053
Genic polymorphism of tetrazolium oxidase in bluefin tuna, <i>Thunnus thynnus</i> , from the western North Atlantic	P. H. Edmunds and J. I. Sammons	1053-1055
Determination of fluoride in soils by a nonfusion distillation pF^- method	P. J. Ke and L. W. Regier	1055-1056
Survival of young fish in the discharge canal of a nuclear power plant	B. C. Marey, Jr.	1057-1060
A practical method for drying freshwater fish	A. W. Lantz and D. G. Iredale	1061-1062
A sensor for detecting the presence of a lobster (<i>Homarus americanus</i>) in a burrow	J. C. Scrivener and L. D. B. Terhune	1062-1063
Infectious pancreatic necrosis virus: comparative frequencies of isolation from feces and organs of brook trout (<i>Salvelinus fontinalis</i>)	C. Frantsi and M. Savan	1064-1065
Recent articles on FRB investigations published in other periodicals		1067-1068
Additional FRB publications		1069
Guides to Authors and Typists		i-vii

No. 8 (Published September 30, 1971)

Effects of sodium chloride on outgrowth and toxin production of <i>Clostridium botulinum</i> type E in cod homogenates	J. W. Boyd and B. A. Southcott	1071-1075
Some physical oceanographic features of inlets of Chile	G. L. Pickard	1077-1106
A computer simulation of the effects of superimposed mortality due to pollutants on populations of fathead minnows (<i>Pimephales promelas</i>)	W. T. Waller, M. L. Dahlberg, R. E. Sparks, and J. Cairns, Jr.	1107-1112
Calorie-to-protein ratio for brook trout (<i>Salvelinus fontinalis</i>)	R. C. Ringrose	1113-1117

- Chronic effects of low dissolved oxygen concentrations on the fathead minnow (*Pimephales promelas*) **W. A. Brungs** 1119-1123
- Degradation of inosine 5'-monophosphate in the skeletal muscle of several North Atlantic fishes **J. R. Dingle and J. A. Hines** 1125-1131
- Migrations of adult and juvenile walleyes (*Stizostedion vitreum vitreum*) in southern Lake Huron, Lake St. Clair, Lake Erie, and connecting waters **R. G. Ferguson and A. J. Derksen** 1133-1142
- Locomotory mechanisms in Caligidae (Crustacea: Copepoda) **Z. Kabata and G. C. Hewitt** 1143-1151
- The winter flounder (*Pseudopleuronectes americanus*) in Long Pond, Conception Bay, Newfoundland **V. S. Kennedy and D. H. Steele** 1153-1165
- Net avoidance behavior in American shad (*Alosa sapidissima*) as observed by ultrasonic tracking techniques **W. C. Leggett and R. A. Jones** 1167-1171
- Levels of constituents of glycoproteins in the sera of Pacific salmon **M. D. Qureshi, R. V. Hledin, W. E. Vanstone, and P. A. Anastassiadis** 1173-1179
- Growth and fecundity of rainbow trout (*Salmo gairdneri*) exposed to single sublethal doses of X-rays during the eyed embryo stage **A. D. Welander, G. W. Wadley, and D. K. Dysart** 1181-1184
- Bacterial counts of commercial fish diets **T. J. Trust** 1185-1189

Notes

- Amino acid and fatty acid composition of tissues of the Dungeness crab (*Cancer magister*) **W. V. Allen** 1191-1195
- Monitoring of fish tank oxygen concentration using a digital recorder **K. R. Scott** 1196-1197
- Supernumerary copulatory organs in *Dugesia tigrina* (Girard 1850) (Platyhelminthes: Turbellaria) **M. J. Boddington and D. F. Mettrick** 1198-1199
- Paralepis coregonoides borealis* (Osteichthyes: Paralepididae) from the Davis Strait and Labrador Sea **W. H. Lear and A. W. May** 1199-1203
- A simple field technique for obtaining small samples of muscle from living fish **J. F. Uthe** 1203-1204
- Two simple durable epifaunal collectors **E. Bourget and G. Lacroix** 1205-1207
- Killifish "hemagglutinogens" **C. E. Metroka, J. V. Chuba, W. J. Kuhns, R. F. Nigrelli, and G. D. Ruggieri** 1208-1210
- Advantages and limitations of "simple" fishery models in light of laboratory experiments **R. P. Silliman** 1211-1214
- Changes in blood lactic acid concentrations in alewives (*Alosa pseudoharengus*) during passage through a pool and weir fishway **C. L. Dominy** 1215-1217
- Comment: *Gould's* The case for accurate labeling of superchilled fish **M. Freese** 1217-1218
- Corrections to recent publications of the Fisheries Research Board of Canada 1219
- Recent articles on FRB investigations published in other periodicals 1221-1222
- Additional FRB publications 1223
- Guides to Authors and Typists i-vii

No. 9 (Published November 15, 1971)

- Cadmium poisoning in *Fundulus heteroclitus* (Pisces: Cyprinodontidae) and other marine organisms **R. Eisler** 1225-1234
- An experiment with medaka, *Oryzias latipes*, and a critique of the hypothesis that teleost egg size controls vertebral count **C. C. Lindsey and M. Y. Ali** 1235-1240
- A comparison of skin tumors in three species of flounders **G. E. McArn and S. R. Wellings** 1241-1251
- Antibody production and immune responses of rainbow trout and coho salmon to *Chondrococcus columnaris* **M. P. Fujihara and R. E. Nakatani** 1253-1258
- Segregation between adult cutthroat trout (*Salmo clarki*) and Dolly Varden (*Salvelinus malma*) in small coastal British Columbia lakes **H. Andrusak and T. G. Northcote** 1259-1268
- Investigations into the relation between integrated echo voltage and fish density **R. E. Thorne** 1269-1273
- Estimation of the Pacific hake (*Merluccius productus*) population in Port Susan, Washington, using an echo integrator **R. E. Thorne, J. E. Reeves, and A. E. Millikan** 1275-1284

Methylmercury in freshwater and marine fishes in New Brunswick, in the Bay of Fundy, and on the Nova Scotia Banks.

- V. Zitko, B. J. Finlayson, D. J. Wildish, J. M. Anderson, and A. C. Kohler 1285-1291
 An expression for the variance of abundance estimates using a fish echo integrator
 P. H. Moose and J. E. Ehrenberg 1293-1301
 Effects of oxygen depletion and of carbon dioxide buildup on the photic behavior of the walleye
 (*Stizostedion vitreum vitreum*) E. Scherer 1303-1307
 A reconsideration of aspects of growth, reproduction, and behavior of the white whale (*Delphinapterus leucas*), with reference to the Cumberland Sound, Baffin Island, population
 P. F. Brodie 1309-1318

Notes

- Perception of polarized light by yearling sockeye salmon (*Oncorhynchus nerka*) P. A. Dill 1319-1322
 A quantitative sampler for aquatic phytomacrofauna G. L. Mackie and S. U. Qadri 1322-1324
 Postmortem changes in the glycogen phosphorylase activity of the muscle of white sucker
 (*Catostomus commersoni*) and northern pike (*Esox lucius*) S. V. Manohar and H. Boese 1325-1326
 Some relations between zooplankton and bunker C oil in Chedabucto Bay following the wreck of
 the tanker *Arrow* R. J. Conover 1327-1330
 The zoogeographic problem involved in the presence of the glacial relict *Pontoporeia affinis*
 (Crustacea: Amphipoda) in Lake Washington, USA S. G. Segerstråle 1331-1334
 Age and growth of the giant Pacific sea scallop, *Patinopecten caurinus*, from the Strait of Georgia
 and outer Washington coast E. B. Haynes and C. R. Hitz 1335-1341
 Maros-Schulek technique for measurement of carbon dioxide production in fish and respiratory
 quotient in *Tilapia mossambica* M. N. Kutty, N. V. Karuppannan, M. Narayanan, and M. P. Mohamed 1342-1344
 Anomalous occurrence of carp (*Cyprinus carpio*) in the marine environment
 W. E. Barraclough and D. G. Robinson 1345-1347
 First record of the bluespotted poacher, *Xeneretmus triacanthus*, in British Columbia
 A. E. Peden and C. G. Gruchy 1347-1348
 A notacanthid *Macdonaldia challengeri* collected off the Oregon coast
 D. Stein and J. Butler 1349-1350
 Infectious pancreatic necrosis of salmonids in Ontario
 R. A. Sonstegard and L. A. McDermott 1350-1351
 Increased predation by the torrent sculpin, *Cottus rhotheus*, on coho salmon fry, *Oncorhynchus*
kisutch, during moonlight nights B. G. Patten 1352-1354
 Recent articles on FRB investigations published in other periodicals 1355-1356
 Additional FRB publications 1357
 Guides to Authors and Typists i-vii

No. 10 (Published December 15, 1971)

- Edith and Cyril Berkeley — An appreciation J. C. Stevenson 1359-1364
 Publications by Edith and/or Cyril Berkeley M. N. Arai 1365-1372
 Revision of *Metavermilia* Bush (Polychaeta, Serpulidae), with descriptions of three new species
 from off Portugal, Gulf of Guinea, and western Indian Ocean H. W. Zibrowius 1373-1383
 Polychaetes as intermediate hosts of helminth parasites of vertebrates: a review L. Margolis 1385-1392
 Descriptions of *Sthenelais fusca* Johnson 1897 and *S. berkeleyi* n.sp. (Polychaeta: Sigalionidae)
 from the eastern Pacific M. H. Pettibone 1393-1401
 Amphipacific distribution of polychaetes P. V. Uschakov 1403-1406
 Abyssal polychaetous annelids from the Mozambique Basin off southeast Africa, with a com-
 pendium of abyssal polychaetous annelids from world-wide areas O. Hartman 1407-1428
 A new polychaete species of the genus *Macellicephaloides* from the Aleutian Trench
 R. Y. Levenstein 1429-1431
 Relation between tube-building and feeding in *Neoamphitrite robusta* (Polychaeta: Terebellidae)
 P. L. Brown and D. V. Ellis 1433-1435
Dodecaceria berkeleyi n.sp., a polychaete (family Cirratulidae) from New Zealand
 G. A. Knox 1437-1443

- Magelona berkeleyi* n.sp. from Puget Sound (Annelida: Polychaeta), with a further redescription of *Magelona longicornis* Johnson and a consideration of recently described species of *Magelona* M. L. Jones 1445-1454
- Redescription of the spionid polychaete *Malacoceros* (*Malacoceros*) *indicus* (Fauvel 1928) N. M. Foster 1455-1457
- Seasonal settlement of polychaetous annelids on test panels in Los Angeles-Long Beach harbors 1950-1951 D. J. Reish 1459-1467
- A new species, and additions to the descriptions of six other species of *Syllides* Örsted (Syllidae: Polychaeta) K. Banse 1469-1481
- Schroederella berkeleyi* sp.n., un nouvel Orbiniidé (Polychète Sédentaire) de la faune interstitielle littorale du Massachusetts (USA) L. Lambier 1483-1486
- Bioluminescence in pelagic polychaetes R. P. Dales 1487-1489
- Two new records of benthic polychaetes from Washington F. H. Nichols 1491-1492
- Simulation studies of the Adams River sockeye salmon (*Oncorhynchus nerka*) P. A. Larkin 1493-1502
- Size selective predation among juvenile salmonid fishes in a British Columbia inlet R. R. Parker 1503-1510
- Aspects of the characterization, identification, and ecology of the bacterial flora associated with the surface of stream-incubating Pacific salmon (*Oncorhynchus*) eggs G. R. Bell, G. E. Hoskins, and W. Hodgkiss 1511-1525
- New distribution records of reptant decapod Crustacea, including descriptions of three new species of *Pagurus*, from the waters adjacent to British Columbia J. F. L. Hart 1527-1544
- Some effects of salinity and temperature on early development of Pacific herring (*Clupea pallasii*) D. F. Alderdice and F. P. J. Velsen 1545-1562
- Four Bomolochidae (Copepoda) from fishes of British Columbia Z. Kabata 1563-1572
- Relation between production and biomass K. R. Allen 1573-1581
- Radioisotope X-ray fluorescence spectrometry in aquatic biology: a review J. R. Calaprice, H. M. McSheffrey, and L. A. Lapi 1583-1594
- Evolution of the Chondrophora: evidence from behavioural studies on *Velella* W. G. Fields and G. O. Mackie 1595-1602
- Ribonucleotide reductase in immature testes of salmon H. L. A. Tarr and L. Gardner 1603-1608
- Circulatory and ventilatory responses of rainbow trout (*Salmo gairdneri*) to artificial manipulation of gill surface area J. C. Davis 1609-1614
- Eualus berkeleyorum* n.sp., and records of other caridean shrimps (order Decapoda) from British Columbia T. H. Butler 1615-1620
- Taxonomy, distribution, and biology of the northern rockfish, *Sebastes polyspinis* S. J. Westrheim and H. Tsuyuki 1621-1627
- An aberrant strain of the bacterial fish pathogen *Aeromonas salmonicida* isolated from a marine host, the sablefish (*Anoplopoma fimbria*), and from two species of cultured Pacific salmon T. P. T. Evelyn 1629-1634
- Growth responses of young sockeye salmon (*Oncorhynchus nerka*) to different diets and planes of nutrition J. R. Brett 1635-1643
- The North and Central American species of *Rhabdochona* Railliet 1916 (Nematoda: Rhabdochonidae) of fishes, including *Rhabdochona canadensis* sp.nov. F. Moravec and H. P. Arai 1645-1662

Notes

- Offshore distribution of Pacific herring (*Clupea pallasii*) on basis of records from fur seal stomachs F. H. C. Taylor 1663-1665
- Derzhavin's biostatistical method of population analysis W. E. Ricker 1666-1672
- Ambicoloration in a petrale sole (*Eopsetta jordani*) C. R. Forrester and M. S. Smith 1672-1674
- Sterols of a brachiopod, *Terebratalia transversa* D. R. Idler and P. Wiseman 1675-1676
- Pachycerianthus* (Ceriantharia) from British Columbia and Washington M. N. Arai 1677-1680
- First record of whitebait smelt (*Allosmerus elongatus*) from Juan de Fuca Strait, British Columbia W. E. Barraclough and R. M. Wilson 1681

No. 11 (Published January 27, 1972)

- Associations and species diversity in benthic macroinvertebrates of Bay of Quinte and Lake Ontario M. G. Johnson and R. O. Brinkhurst 1683-1697

- Production of benthic macroinvertebrates of Bay of Quinte and Lake Ontario
M. G. Johnson and R. O. Brinkhurst 1699-1714
- Benthic community metabolism in Bay of Quinte and Lake Ontario
M. G. Johnson and R. O. Brinkhurst 1715-1725
- Surges of winter flounder, *Pseudopleuronectes americanus*, into the intertidal zone
A. V. Tyler 1727-1732
- Production potential of a seaweed-lobster community in eastern Canada
R. J. Miller, K. H. Mann, and D. J. Searratt 1733-1738
- Some factors in susceptibility of juvenile rainbow trout and chinook salmon to *Chondrococcus columnaris*
M. P. Fujihara, P. A. Olson, and R. E. Nakatani 1739-1743
- A biochemical and cytological study of the longnose sucker (*Catostomus catostomus*) and large and dwarf forms of the white sucker (*Catostomus commersoni*)
R. J. Beamish and H. Tsuyuki 1745-1748
- Effects of starvation, feeding, and light period on circulus formation on scales of young sockeye salmon (*Oncorhynchus nerka*)
H. T. Bilton and G. L. Robins 1749-1755
- Response of young sockeye salmon (*Oncorhynchus nerka*) to prolonged periods of starvation
H. T. Bilton and G. L. Robins 1757-1761
- Eutrophication of lake 227, Experimental Lakes Area, northwestern Ontario, by addition of phosphate and nitrate
D. W. Schindler, F. A. J. Armstrong, S. K. Holmgren, and G. J. Brunskill 1763-1782
- Distribution of radioactive and stable zinc in an experimental marine ecosystem
F. A. Cross, J. N. Willis, and J. P. Baptist 1783-1788
- Interaction between paralytic shellfish poison and melanin obtained from butter clam (*Saxidomus giganteus*) and synthetic melanin
R. J. Price and J. S. Lee 1789-1792

Notes

- Effects of adaptive and nonadaptive feeding of hydrogenated and raw herring oil on hearts and livers of weanling rats
P. H. Odense and H. Brockerhoff 1793-1795
- Preliminary description of an unusual gonatid squid (Cephalopoda: Oegopsida) from the North Pacific
W. G. Fields and V. A. Gauley 1796-1801
- Temperature selection of rainbow trout (*Salmo gairdneri*) fingerlings in vertical and horizontal gradients
R. W. McCauley and W. L. Pond 1801-1804
- Estimating distances between fish schooling in an aquarium
P. E. K. Symons 1805-1806
- Mobilization of mercuric sulfide from sediment into fish under aerobic conditions
D. C. Gillespie and D. P. Scott 1807-1808
- New records of lymphocystis disease in four eastern Pacific fish species
J. E. McCosker and R. F. Nigrelli 1809-1810
- Survival of some freshwater fishes in the alkaline eutrophic waters of Nebraska
D. B. McCarraher 1811-1814
- A dispenser for Winkler's dissolved oxygen reagents
I. W. Duedall, A. R. Coote, D. F. Knox, and G. F. Connolly 1815-1816
- Acid phosphatase activity in vegetative cells and spores of *Clostridium botulinum* type E
G. A. Strasidine and J. M. Melville 1817-1820
- Recent articles on FRB investigations published in other periodicals 1821
- Additional FRB publications 1822
- Guides to Authors and Typists i-vii

No. 12 (Published February 28, 1971)

- Effects of handling and salinity on oxygen requirements of the striped bass, *Morone saxatilis*
M. E. Chittenden Jr. 1823-1830
- Geographic distribution and relative abundance of Salpidae off the Oregon coast
L. T. Hubbard Jr. and W. G. Pearcey 1831-1836
- The solubilizing effect of lysolecithin on the extractability of various tissues of rainbow trout (*Salmo gairdneri*)
R. E. E. Jonas 1837-1840
- Chloramine toxicity of the amphipod *Gammarus pseudolimnaeus* and the fathead minnow (*Pimephales promelas*)
J. W. Arthur and J. G. Eaton 1841-1845
- Predation by rainbow trout (*Salmo gairdneri*): the effect of experience
D. M. Ware 1847-1852

- Egg proteins of coho salmon (*Oncorhynchus kisutch*): chromatographic separation and molecular weights of the major proteins in the high density fraction and their presence in salmon plasma
J. R. Markert and W. E. Vanstone 1853-1856
- Introduction of kokanee salmon (*Oncorhynchus nerka*) into Lake Huron
J. J. Collins 1857-1871
- Occurrence of the bowhead or Greenland right whale (*Balaena mysticetus*) in Canadian arctic waters
A. W. Mansfield 1873-1875
- Accumulation and persistence of DDT in a lotic ecosystem
J. B. Dimond, A. S. Getchell, and J. A. Blease 1877-1882
- Physical and chemical limnology of the lakes of Manitoulin Island
H. H. Harvey and J. F. Coombs 1883-1897
- The stress of formalin treatments in rainbow trout (*Salmo gairdneri*) and coho salmon (*Oncorhynchus kisutch*)
G. Wedemeyer 1899-1904
- Obituary — Maurice Aloysius Foley
G. G. Anderson 1905

Notes

- Factors affecting respiration rates of winter flounder (*Pseudopleuronectes americanus*)
R. A. Voyer and G. E. Morrison 1907-1911
- Concentration of Bunker C fuel oil in the waters of Chedabucto Bay, April 1971
D. C. Gordon Jr. and P. A. Michalik 1912-1914
- Fertilization of steelhead trout (*Salmo gairdneri*) eggs with cryo-preserved sperm
A. G. Ott and H. F. Horton 1915-1918
- Abnormal body curvatures of rainbow trout (*Salmo gairdneri*) inbred fry
D. Aulstad and A. Kittelsen 1918-1920
- A record of Pacific herring (*Clupea harengus pallasii*) feeding on juvenile chinook salmon (*Oncorhynchus tshawytscha*) in a British Columbia estuary
J. Ito and R. R. Parker 1921
- A sculpin (*Icelus spiniger*) new to the coastal waters of British Columbia
W. E. Barraclough 1922-1924

Index to publications for 1971

1925-2056

Additional FRB Publications

The Fisheries Research Board of Canada also publishes a series of *Bulletins*, each on a specific topic. These are for sale by Information Canada, Ottawa, and remittances must be in advance, payable in Canadian funds to the order of the Receiver General of Canada. *Bulletins* are also available from local booksellers and Information Canada bookshops throughout Canada.

The *Annual Report* of the Board and the biennial *Review* of investigations are available free, on request. All publications may be referred to at Board establishments located at: Ottawa; Nanaimo and Vancouver, B.C.; Winnipeg, Man.; Ste. Anne de Bellevue, Que.; St. Andrews, N.B.; Halifax and Dartmouth, N.S.; and St. John's, Nfld.

L'Office des recherches sur les pêcheries du Canada publie également une série de *Bulletins*, chacun traitant sur un sujet spécifique. Les publications de l'ORP sont vendues par Information Canada à Ottawa. Les remises, payables d'avance en monnaie canadienne, doivent être établies à l'ordre du Receveur général du Canada. Les *Bulletins* sont aussi en vente chez votre libraire et dans les librairies d'Information Canada.

Vous pouvez obtenir le Rapport Annuel et la Revue biennale gratuitement. On peut consulter ces ouvrages aux établissements de l'Office situés à Ottawa (Ont.) à Nanaimo et à Vancouver (C.-B.), à Winnipeg (Man.), à Ste-Anne-de-Bellevue (P.Q.), à St-Andrews (N.-B.), à Halifax et à Dartmouth (N.-E.), et à St-Jean (T.-N.).

da
nt
RP
es
ne,
du
tre
da.
vue
ges
(t.)
(n.),
(B.),
(N.).